

Targeting Topics: Recent Scientific References

(continued from page 3)

results suggest that CA neurons promote wakefulness, participate in central respiratory chemoreception, stimulate breathing frequency, and minimize breathing variability during REM sleep.

Effect of N-METHYL-D-aspartate receptor blockade on plasticity of frontal cortex after cholinergic deafferentation in rat.

Garrett JE, Kim I, Wilson RE, Wellman CL
Neuroscience [Epub Mar 7], 2006.

Acetylcholine from the nucleus basalis magnocellularis (NBM) plays roles in neocortical function and plasticity. Here the authors examined whether N-methyl-D-aspartate receptors mediate the increase in the GluR1 subunit of the α -amino-3-



hydroxy-5-methylisoxazole-4-propionate receptor in the frontal cortex following treatment of the NBM with 0.15 μ g of 192-IgG-SAP (Cat. #IT-01). The data indicates that upregulation of GluR1 and spine density after cholinergic deafferentation is regulated by N-methyl-D-aspartate receptors.

Safety evaluation of Intrathecal Substance P-Saporin, a targeted neurotoxin, in dogs.

Allen JW, Mantyh PW, Horais K, Tozier N, Rogers SD, Ghilardi JR, Cizkova D, Grafe MR, Richter P, Lappi DA, Yaksh TL

Toxicol Sci [Epub Feb 24], 2006.

SP-SAP (Cat. #IT-07) has been shown to reverse neuropathic pain behavior in rodents and prevent the formation of hyperalgesia. A safety study was done in beagles to further the use of this molecule as a human therapeutic. Animals received doses from 1.5-150 μ g of SP-SAP as bolus intrathecal lumbar injections. Doses of 15 μ g and above displayed significant loss of NK1r-expressing cells in lumbar Laminae II and I, but no adverse toxicity was observed at any dose.

American Pain Society
May 3-6, 2006
San Antonio, TX
Booth #339



FENS
July 7-12, 2006
Vienna, Austria
Booth #514

Abstracts from the Experimental Biology Meeting, April 1-4, San Francisco, CA

Effect of lesions in the nucleus tractus solitarius on hypercapnic ventilatory response in awake rats.

Wilkinson KA, Fu Z, Powell FL

Abstract #480.9

After bilateral injections of 200 nL of SP-SAP (Cat. #IT-07), the authors examined the significance of CO₂-sensitive neurons in the NTS. Blank-SAP (Cat. #IT-21) was injected as control. Results show a physiological role for chemoreceptors in the NTS. Additional studies will determine if these neurons play a unique role in ventilatory acclimitization to hypoxia.

Central baroreflex interruption, cardiac toxicity, and sudden death.

Nayate AP, Moore SA, Weiss RM, Lin L-H, Talman WT. Abstract #467.19

The authors used SSP-SAP (Cat. #IT-11) to eliminate nucleus tractus solitarii neurons that express NK-1 receptors. They hypothesized that cardiac toxicity appears after development of arterial pressure lability. The cardiac changes brought on by this treatment provide a rat model that mimics central lesions in humans.

Brainstem catecholaminergic neurons affect mean arterial pressure and heart rate at rest and during hypercapnic stress in conscious rats.

Emond LA, Li A, Nattie E. Abstract #229.38

The authors used anti-DBH-SAP (Cat. #IT-03) and the control immunotoxin, Mouse IgG-SAP (Cat. #IT-18). They specifically lesioned brainstem catecholaminergic (CA) neurons by injecting anti-DBH-SAP into the fourth ventricle of rats. Control rats produced no neural lesion. The results suggest that brainstem CA neurons lower mean arterial pressure and heart rate at rest.