

# Targeting Topics: Recent Scientific References

(continued from page 3)

Animals treated with anti-DBH-SAP displayed lengthened duration of the pressor response and sustained RSNA.

## Lesions of medullary catecholaminergic neurons increase salt intake in rats.

Colombari DS, Pedrino GR, Freiria-Oliveira AH, Korim WS, Maurino IC, Cravo SL  
*Brain Res Bull* 76:572-578, 2008.

Catecholaminergic neurons in the caudal ventrolateral medulla (CVLM) are thought to contribute to cardiovascular regulation and body fluid homeostasis. Bilateral 6.3-ng injections of anti-DBH-SAP (Cat. #IT-03) were administered to the CVLM of rats. Saporin (Cat. #PR-01) was used as a control. After lesioning and challenge with either furosemide/captopril or water deprivation, intake of 0.3 M NaCl and water were observed. The data indicate medullary catecholaminergic neurons play an inhibitory role in sodium appetite.

## Effects of hypocretin (orexin) neuronal loss on sleep and extracellular adenosine levels in the rat basal forebrain.

Murillo-Rodriguez E, Liu M, Blanco-Centurion C, Shiromani PJ  
*Eur J Neurosci* [Epub Sep 9], 2008.

Adenosine levels in the basal forebrain are thought to regulate the waxing and waning of sleep drive. Rats received bilateral 100-ng injections of orexin-SAP (Cat. #IT-20) into the lateral hypothalamus – resulting in a 94% loss of orexin-containing neurons. Lesioned animals displayed several changes in sleep characteristics, but no increase of adenosine levels after sleep deprivation. The results indicate that sleep changes due to orexin-SAP lesioning occur independently of adenosine levels.

## Hyperphagia and obesity produced by arcuate injection of NPY-saporin do not require upregulation of lateral hypothalamic orexigenic peptide genes.

Li AJ, Dinh TT, Ritter S  
*Peptides* [Epub Jun 5], 2008.

It has already been shown that lesioning NPY receptor-expressing cells in the arcuate nucleus (Arc) and basomedial hypothalamus produces obesity in rats.

The authors examined the contribution of orexigenic peptides, orexins, and melanocortin-concentrating hormone to the lesion effects. Rats received bilateral 24 ng injections of NPY-SAP (Cat. #IT-28) into the dorsal border of the Arc. Blank-SAP (Cat. #IT-21) was used as a control. The data suggest that obesity produced by NPY-SAP lesion is different than dietary obesity or obesity associated with leptin or leptin receptor deficiency.



## The neonatal injury-induced spinal learning deficit in adult rats: central mechanisms.

Young EE, Baumbauer KM, Hillyer JE, Patterson AM, Hoy KC, Jr., Mintz EM, Joynes RL  
*Behav Neurosci* 122:589-600, 2008.

This report examined whether neonatal injuries had any contralateral effects in adult life, and evaluated the role of the NK1 receptor of adult animals that had been subjected to neonatal trauma. Rats were injected with 5  $\mu$ l of SP-SAP (Cat. #IT-07, 30 ng/ $\mu$ l, 100 ng/ $\mu$ l, or 300 ng/ $\mu$ l) into the intrathecal space. Blank-SAP (Cat. #IT-21) was used as a control.

The results indicate both that injury effects are isolated in the injured limb, and NK1 receptor-expressing cells are involved in processing this pain.

## Environmental Enrichment Provides a Cognitive Reserve to be Spent in the Case of Brain Lesion.

Mandolesi L, De Bartolo P, Foti F, Gelfo F, Federico F, Leggio MG, Petrosini L  
*J Alzheimers Dis* 15(1):11-28, 2008.

The cognitive reserve model suggests individuals can develop resources that reduce the risk of later cognitive impairment. This theory was tested by raising rats in standard vs. enriched environments then lesioning the animals with 192-IgG-SAP (Cat. #IT-01). A total of 0.8  $\mu$ g of 192-IgG-SAP was administered in bilateral injections, followed by various behavioral tests. It was found that animals raised in an enriched environment had reduced cognitive impairment following forebrain lesions.

## Noradrenergic inputs to the paraventricular hypothalamus contribute to hypothalamic-pituitary-adrenal axis and central Fos activation in rats after acute systemic endotoxin exposure.

Bienkowski MS, Rinaman L  
*Neuroscience* [Epub Aug 13], 2008.

Noradrenergic (NA) neurons in the central nervous system are activated during the immune response to systemic lipopolysaccharide (LPS). The authors tested whether these neurons with axonal inputs to the paraventricular nucleus (PVN) were necessary for LPS-directed Fos expression and increase of plasma corticosterone. Rats received 44-ng bilateral injections of anti-DBH-SAP (Cat. #IT-03) into the medial PVN then were challenged with i.p. LPS. Lesioned animals had attenuated Fos activation and smaller than normal increases in plasma corticosterone.