

Targeting Topics: Recent Scientific References

(continued from page 3)

Neuroprotective effects of the anti-inflammatory compound triflusal on ischemia-like neurodegeneration in mouse hippocampal slice cultures occur independent of microglia

Montero Dominguez M, Gonzalez B, Zimmer J

Exp Neurol 218(1):11-23, 2009.

In this work the authors looked to clarify the role of microglia in an experimental stroke model. Hippocampal slices were subject to oxygen-glucose deprivation to establish the stroke model. Slices were exposed to 1.3 nM Mac-1-SAP (Cat. #IT-06) for 7 days prior to the experiments. This treatment depleted virtually all of the microglia.

See Cover Story for details.

Central chemoreception is a complex system function that involves multiple brain stem sites

Nattie E, Li A

J Appl Physiol 106(4):1464-1466, 2009.

This short review discusses central chemoreception and the different neuronal subtypes that play roles in this process. The use of anti-SERT-SAP (Cat. #IT-23) and anti-DBH-SAP (Cat. #IT-03) is mentioned in the context of how the loss of each of these cell types affects CO₂ response in rats.

Neurotrophic signaling molecules associated with cholinergic damage in young and aged rats: Environmental enrichment as potential therapeutic agent

Paban V, Chambon C, Manrique C, Touzet C, Alescio-Lautier B

Neurobiol Aging [Epub], 2009.

This study examined the potential of long-term environmental enrichment as a therapeutic agent for cholinergic damage. Rats received bilateral injections of 192-IgG-SAP (Cat. #IT-01) into the medial septum (37.5 ng per side) and nucleus basalis magnocellularis (75 ng per side). Through the use of cDNA macroarrays the authors associated the therapeutic effects of environmental enrichment with downregulation of gene expression associated with certain cell processes, and upregulation of gene expression associated with signal transduction.

A discrete GABAergic relay mediates medial prefrontal cortical inhibition of the neuroendocrine stress response

Radley JJ, Gosselink KL, Sawchenko PE

J Neurosci 29(22):7330-7340, 2009.

GABAergic neurons have been implicated in the negative regulation of the hypothalamic-pituitary-adrenal axis (HPA). In order to clarify GABAergic input to the paraventricular hypothalamic nucleus the authors injected 0.23 µg of GAT1-SAP (Cat. #IT-32) into the anterior bed nucleus of the stria terminalis. Both unilateral and bilateral injections were used. Rabbit IgG-SAP (Cat. #IT-35) was used as a control. The data indicate that the GABAergic neuronal population functions as proximate mediator of HPA-inhibitory limbic influences.



Neuropathic pain is maintained by brainstem neurons co-expressing opioid and cholecystokinin receptors

Zhang W, Gardell S, Zhang D, Xie JY, Agnes RS, Badghisi H, Hrubby VJ, Rance N,

Ossipov MH, Vanderah TW, Porreca F, Lai J

Brain 132(Pt 3):778-787, 2009.

A subpopulation of rostral ventromedial medulla (RVM) neurons express both the mu opioid receptor (MOR) and the cholecystokinin type 2 receptor (CCK₂). The authors tested the hypothesis that co-expression of these receptors is necessary for maintaining neuropathic pain. Rats received 50-ng bilateral injections of demorphin-SAP (Cat. #IT-12), CCK-SAP (Cat. #IT-31), or the control (saporin alone, Cat. #PR-01) into the RVM. The data indicate that neurons co-expressing these receptors facilitate pain and can be directly activated by CCK input to the RVM.

The basal forebrain cholinergic system is required specifically for behaviorally mediated cortical map plasticity

Ramanathan D, Tuszynski MH, Conner JM

J Neurosci 29(18):5992-6000, 2009.

In this work the authors examined what types of neuronal plasticity require the cholinergic system. Selective depletion of the basal forebrain cholinergic system was accomplished by bilateral 112-ng and 75-ng injections of 192-IgG-SAP (Cat. #IT-01) into the nucleus basalis magnocellularis/substantia innominata. The results indicate a linkage between cholinergic mechanisms and distinct forms of cortical plasticity, supporting the role of the forebrain cholinergic system in modulating plasticity associated with behavioral experience.

Ablation of least shrew central neurokinin NK1 receptors reduces GR73632-induced vomiting

Ray AP, Chebolu S, Ramirez J, Darmani NA

Behav Neurosci 123(3):701-706, 2009.

In this work the authors investigated the role of central and peripheral nervous systems components that mediate the emetic reflex. Least shrews received a 600-ng injection of SSP-SAP (Cat. #IT-11) into the lateral ventricle. Some animals also received a 4.8-µg intraperitoneal injection of SSP-SAP. Blank-SAP (Cat. #IT-21) and unconjugated saporin (Cat. #PR-01) were used as controls. Lesioned animals displayed reduced emesis, but the data indicate that a minor peripheral nervous system component is also present.

Neuropeptide Y receptor-expressing dorsal horn neurons: role in nocifensive reflex responses to heat and formalin

Wiley RG, Lemons LL, Kline RH 4th

Neuroscience 161(1):139-147, 2009.

In order to clarify the role of dorsal horn Y1 neuropeptide Y receptors (Y1R) in nocifensive responses to aversive stimuli, the authors injected 500-750 ng of NPY-SAP (Cat. #IT-28) into the intrathecal space of rats. Blank-SAP (Cat. #IT-21) was used as a control. Lesioned animals displayed specific loss of Y1R and increased latencies on several reflex response tests indicating a role for Y1R in nociception.