

Targeting Topics: Recent Scientific References

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brainstem. This experiment used 16.5-ng injections of orexin-SAP (Cat. #IT-20) into each side of the ventrolateral periaqueductal gray (v/PAG) to examine these connections. The results indicate that loss of orexin receptor-positive neurons in the v/PAG results in loss of inhibitory control over REM sleep, but does not cause cataplexy.

Role of layer 6 of V2 visual cortex in object-recognition memory

Lopez-Aranda MF, Lopez-Tellez JF, Navarro-Lobato I, Masmudi-Martin M, Gutierrez A, Khan ZU
Science 325(5936):87-89, 2009.

The authors examined the role of the V2 visual cortex in visual memory. Working with the prediction that object-recognition memory (ORM) control is centered in the V2 visual cortex, rats received 0.9- μ g injections of OX7-SAP (Cat. #IT-02) into this area. Treatment with OX7-SAP eliminated virtually all neurons in layer 6 of area V2 of the visual cortex without damaging the hippocampus. The results indicate that this area of the visual cortex is important for ORM formation, but not storage.

Ketamine-induced deficit of auditory gating in the hippocampus of rats is alleviated by medial septal inactivation and antipsychotic drugs

Ma J, Tai SK, Leung LS
Psychopharmacol (Berl) [Epub Aug 5], 2009.

Schizophrenic patients do not experience the usual diminished response to repeated stimuli, otherwise known as gating. Gating loss can be caused by the administration of some psychotomimetic drugs. This study used 170-ng injections of 192-IgG-SAP (Cat. #IT-01) to examine the effect of ketamine on sensory gating loss. Elimination of septohippocampal cholinergic neurons alleviated the disruption of auditory gating caused by ketamine.

Immunotoxic depletion of microglia in mouse hippocampal slice cultures enhances ischemia-like neurodegeneration

Montero M, Gonzalez B, Zimmer J
Brain Res 1291:140-152, 2009.

Data has shown microglia to be both neuroprotective and neurodegenerative in

cerebral ischemia. This study presents a method for removing microglia from hippocampal slice cultures. Hippocampal slices from mouse were incubated with 13-nM Mac-1-SAP (Cat. #IT-06) for 3 to 7 days. The slices were then exposed to oxygen-glucose deprivation. Those cultures lacking microglia displayed significantly higher degeneration of CA1 pyramidal cells, indicating a neuroprotective role for microglia in this model.



T-cell reconstitution without T-cell immunopathology in two models of T-cell-mediated tissue destruction

Penaloza-MacMaster P, Masopust D, Ahmed R
Immunology 128(2):164-171, 2009.

Although antigen-specific T-cells are vital to adaptive immune responses, they also contribute to a variety of diseases. In this work the authors examined the possibility of selectively removing epitope-specific T cells while preserving immune function.

Biotinylated MHC class I monomers were combined with streptavidin-ZAP (Cat. #IT-27) and used in a mouse transferable T-cell-dependent neurological disease model. This technique resulted in a dramatic reduction in targeted antigen-specific T-cells with no observable bystander toxicity.

Cellular Basis of Itch Sensation

Sun YG, Zhao ZQ, Meng XL, Yin J, Liu XY, Chen ZF
Science [Epub Aug 6], 2009.

Whether itch and pain use separate neuronal pathways has long been a subject of debate. The authors injected 400 ng of bombesin-SAP (Cat. #IT-40) into the intrathecal space of mice and examined itch and pain behavior. Lesioned mice had dramatic deficits in all itch behavior tested regardless of the histamine-dependence of the itch. All pain behaviors, however, were left intact. These

data indicate that the gastrin-releasing peptide receptor-expressing neurons are essential for itch transmission. (See Cover Article.)

Effects of the selective lesions of cholinergic septohippocampal neurons on different forms of memory and learning process

Dashniani MG, Beseliia GV, Maglakelidze GA, Burdzhnandze MA, Chkhikvishvili N
Georgian Med News 166):81-85, 2009.

The hippocampus is crucial for the ability to recollect everyday events and factual knowledge. Here the authors looked at the role of the septo-hippocampal cholinergic system of the medial septum in learning and memory. Rats received 200-ng injections of 192-IgG-SAP (Cat. #IT-01) into the medial septum. Mouse IgG-SAP (Cat. #IT-18) was used as a control. The data suggest that although the septo-hippocampal region is essential for spatial learning, hippocampal acetylcholinesterase may not be essential for all types of hippocampal-dependent memory.

Neonatal stress affects vulnerability of cholinergic neurons and cognition in the rat: Involvement of the HPA axis

Aisa B, Gil-Bea FJ, Marcos B, Tordera R, Lasheras B, Del Rio J, Ramirez MJ
Psychoneuroendocrinol [Epub Jun 6], 2009.

Early adverse life events such as maternal separation (MS) can increase vulnerability to psychopathology as an adult. The authors administered bilateral intracerebroventricular 1- μ g injections of 192-IgG-SAP (Cat. #IT-01) to MS rats, then analyzed choline acetyltransferase and acetylcholinesterase activity. Lesioned animals displayed reduced activity of both of these enzymes, as well as decreased glucocorticoid receptor density. The results suggest that vulnerability of basal forebrain cholinergic cells may be affected by the hypothalamic-pituitary-adrenal axis.

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