Targeting Topics: Recent Scientific References

(continued from page 3)

Rats were treated with bilateral injections of 192-IgG-SAP (Cat. #IT-01); 37.5 ng per side into the medial septum, and 75 ng per side into the nucleus basalis magnocellularis. One month after treatment behavioral deficits were drastic and cholinergic neurons had completely disappeared. Elevated levels of polysialylated neural cell adhesion molecule were temporarily able to compensate for the loss of cholinergic neurons.

Estradiol enhances DMP acquisition via a mechanism not mediated by turning strategy but which requires intact basal forebrain cholinergic projections

Gibbs RB
Horm Behav 52(3):352-359, 2007.

Estradiol appears to enhance cholinergic projections to the hippocampus and frontal cortex as shown by tests of response patterns and strategy in rats. The author tested whether this effect was involved with turning strategy, defined as which arm was chosen first in a T-maze. 0.22 μg injections of 192-IgG-SAP (Cat. #IT-01) were made into the medial septum of rats. Lesioned animals utilized a persistent turning strategy; they always chose the same arm of the maze first, even after the administration of estradiol. These data suggest that although the effects of estradiol are not linked to turning strategy, estradiol does interact with the cholinergic system.

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Sensory experience determines enrichment-induced plasticity in rat auditory cortex

Percaccio CR, Pruette AL, Mistry ST, Chen YH, Kilgard MP
Brain Res [Epub Aug 9], 2007.

Animals housed in enriched environments display numerous signs of good neural health. In this work the authors examined the role acetylcholine plays in this plasticity. 2.6 μg of 192-IgG-SAP (Cat. #IT-01) was injected into the left lateral ventricle of rats. Auditory-evoked responses were used to assess the effect of lesioning cholinergic neurons. Response strength was not reduced in lesioned animals, indicating that cholinergic deficits do not affect this system.

Induction and survival of binucleated Purkinje neurons by selective damage and aging

Magrassi L, Grimaldi P, Ibatici A, Corselli M, Ciardelli L, Castello S, Podesta M, Frassoni F, Rossi F
J Neurosci 27(37):9885-9892, 2007.

Donor bone marrow-derived cells are thought to fuse with host Purkinje cells in small numbers to create binucleated cells. These fusions have been found to persist within the recipient for long periods of time. The authors injected 2.2 μg of 192-IgG-SAP (Cat. #IT-01) into the right lateral ventricle of rats to examine whether the damage of host Purkinje cells is a method to increase the numbers of binucleated cells. The data suggest an alternate method is present for the creation of these cells.

Raphe Magnus Nucleus is involved in ventilatory but not hypothermic response to CO2

Dias MB, Nucci TB, Margatho LO, Antunes-Rodrigues J, Gargaglioni LH, Branco LG
J Appl Physiol [Epub Sep 9], 2007.

In this work the authors investigated the role that serotonergic neurons in the Raphe Magnus Nucleus (RMg) play in ventilatory and thermal responses to hypercapnia. 0.1 μl of 1 μM anti-SERT-SAP (Cat. #IT-23) was injected into the RMg of rats. Mouse-IgG-SAP (Cat. #IT-18) was used as a control. Lesioned animals had a decreased ventilatory response to CO_2, but hypercapnia-induced hypothermia was not affected. The data indicate that RMg serotonergic neurons contribute to CO_2 ventilatory response but not to maintenance of ventilation.

A limited role for microglia in antibody mediated plaque clearance in APP mice

Garcia-Alloza M, Ferrara BJ, Dodwell SA, Hickey GA, Hyman BT, Bacskai BJ
Neurobiol Dis [Epub Jul 28], 2007.

Microglia are thought to play a key role in the clearance of amyloid-beta (Abeta) in Alzheimer's disease. To examine this role the authors applied 30 μl of 0.5 mg/ml Mac-1-SAP (Cat. #IT-06) to the brain surface of mice for 20 minutes. The number of microglia and plaques was determined by counting of immunohistochemical samples. Results indicate that microglia play a minor role in clearing Abeta plaques, although the interaction of microglia-mediated inflammation and anti-Abeta antibodies appears to be vital in this process.