Targeting Topics: Recent Scientific References

(continued from page 3)

Selective behavioral and neurochemical effects of cholinergic lesions produced by intrabasalis infusions of 192 IgG-saporin on attentional performance in a five-choice serial reaction time task

McGaughy J, Dalley JW, Morrison CH, Everitt BJ, Robbins TW
J Neurosci 22(5):1905-1913, 2002

192-Saporin (Cat. #IT-01) has been a very useful tool in determining the role of the basal forebrain cholinergic system in arousal and attention tasks. The authors lesioned the nucleus basalis magnocellularis of rats with an infusion of 0.5 µl per hemisphere of 0.15 µg/µl or 0.45 µg/µl 192-Saporin. The data show a correlation between the extent of the lesion and the amount of impairment in an attentional task. The authors also found that the accuracy deficits in the task could be ameliorated by lengthening the stimulus time, or exacerbated by increasing the event rate. Taken together the data indicate a direct relationship between basal forebrain damage and impaired attentional function.

Septal grafts and evoked acetylcholine release in the rat hippocampus after 192 IgG-saporin lesions

Birthelmer A, Dommes E, Jeltsch H, Cassel JC, Jackisch R
Regen Transplant 13(7):973-976, 2002

The authors investigate the structural and behavioral effects of intrahippocampal grafts containing cholinergic neurons into a lesioned region of the brain. Previous studies in rats were complicated by the lack of a specific cholinergic lesioning agent. 0.4 µg 192-Saporin (Cat. #IT-01) in 0.4 µl was injected into the vertical limb of the diagonal band of Broca in rats, then 6 to 10 months later the animals received intrahippocampal grafts of septal cells containing cholinergic neurons. Measurement of noradrenaline and serotonin uptake indicate that the grafts were able to produce only modest cholinergic effects. The authors conclude that this may be a result of performing the graft too soon following administration of the immunotoxin.

Time-dependent descending facilitation from the rostral ventromedial medulla maintains, but does not initiate, neuropathic pain

Burgess SE, Gardell LR, Ossipov MH, Malan Jr TP, Vanderah TW, Lai J, Porreca F
J Neurosci 22(12):5129-5136, 2002

Various indications, such as declining afferent discharge over time, suggest that the mechanisms involved in persistent neuropathic pain are different than those that initiate the pain. The authors have previously shown that cells expressing the mu-opioid receptor are involved in the descending pain pathway. In this work, the authors lesioned the rostral ventromedial medulla (RVM) in rats using 1.5 pmol in 0.5 µl of dermorphin-SAP (Cat. #IT-12) administered to each side of the RVM. Measurements of pain-related behavior show that mu-opioid receptor-expressing cells in the RVM are involved in the maintenance of heightened sensitivity to stimuli seen in neuropathic pain.

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Species Reactivity:	Rat
Applications:	FACS analysis

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