Targeting Topics: Recent Scientific References

Summarized by Matthew Kohls

Colocalization of μ-opioid Receptors and Activated G-proteins in Rat Cingulate Cortex

Vogt LJ, Sim-Selley LJ, Childers SR, Wiley RG, and Vogt BA
J Pharmacol Exper Ther 299:840-848, 2001

The anterior cingulate cortex (ACC) is a primary site of opiate drug action, and much of this activity is associated with the μ-opioid receptor (MOR). The mechanisms by which MOR regulates pain in the ACC are not well understood. Using anti-DBH-SAP (7 μg into left lateral ventricle in rat; Cat. #IT-03) the authors mapped MOR activity in the ACC and evaluated the histochemical and behavioral relationships between MOR binding and μ-receptor-activated G-proteins after lesioning.

Selective Immunolesions of Cholinergic Neurons in Mice: Effects on Neuroanatomy, Neurochemistry, and Behavior

Berger-Sweeney J, Stearns NA, Murg SL, Floerke-Nashner LR, Lappi DA, Baxter MG
J Neurosci 21(20):8164-8173, 2001

192-Saporin (Cat. #IT-01) has long been an effective agent for elimination of cholinergic neurons in the basal forebrain of rats. Until the development of mu p75-SAP (Cat. #IT-16) there was no equivalent agent for use in mice. The authors tested mu p75-SAP *in vitro* and *in vivo* (1.8-3.6 μg in right lateral ventricle), using cytotoxic, histochemical, and behavioral assays. The data shows that mu p75-SAP is a highly selective and efficacious lesioning agent for cholinergic neurons in the mouse. The authors conclude that mu p75-SAP will be a powerful tool to use in combination with genetic modification to investigate cholinergic damage in mouse models of Alzheimer's disease.

Please visit our website (www.ATSbio.com) to see a complete list of references.

Extensive Immunolesions of Basal Forebrain Cholinergic System Impair Offspring Recognition in Sheep

Ferreira G, Meurisse M, Gervais R, Ravel N, Levy F
Neurosci 106(1):103-115, 2001

Through the use of 192-Saporin (Cat. #IT-01) the association of basal forebrain cholinergic neurons to learning instrumental tasks has been well established in the rat. The authors wished to examine whether these neurons were also associated with social learning tasks, such as offspring recognition in sheep. Using ME20.4-SAP (Cat. #IT-15) the basal forebrain cholinergic neurons of sheep were lesioned by intraventricular bilateral injections (150 μg). The results demonstrate that these neurons contribute to visual discrimination learning, and are involved in formation of lamb recognition memory.

Dissociation between the Attentional Functions Mediated via Basal Forebrain Cholinergic and GABAergic Neurons

Burk JA, Sarter M
Neurosci 105(4):899-909, 2001

The specificity and efficacy of 192-Saporin (Cat. #IT-01) has allowed the extensive investigation of cortical cholinergic inputs in attentional functions. Little is known about the function of non-cholinergic neurons because of the lack of a specific tool to eliminate these projections. The authors injected 192-Saporin (0.1 μg/0.5 μl bilateral infusions) into rats and compared performance to rats treated with ibotenic acid to eliminate GABAergic neurons in attention performance tasks. While the ibotenic acid lesions were not as specific as those produced by 192-Saporin, the data suggest a role for the basal forebrain GABAergic neurons in attentional functions.

Novel Method for Localized, Functional Sympathetic Nervous System Denervation of Peripheral Tissue Using Guanethidine

Demas GE, Bartness TJ
J Neurosci Meth 112:21-28, 2001

Sympathectomy, or surgical interruption of sympathetic nerve pathways, is an important technique in the analysis of the sympathetic nervous system. The authors investigate and compare several different methods of performing a sympathectomy in hamsters, including surgery, chemical, and immunotoxic lesions using anti-DBH-SAP (ten 2-μl injections, at either 0.65 μg/μl or 0.325 μg/μl, into inguinal white adipose tissue; Cat. #IT-03).

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