Targeting Topics: Recent Scientific References

Summarized by Matthew Kohls

Loss of nerve: a molecular approach to better treatment of chronic pain

Friedrich MJ
JAMA 283(2):187-188, 2000.

The use of SP-SAP (Cat. #IT-07) as a promising new method for chronic pain relief is discussed in this review article. Chronic pain has classically been treated in ways that frequently have adverse effects on the patient's quality of life. Friedrich touches on recently developed toxins that are useful in techniques of molecular neurosurgery. These techniques allow the dissection of pain pathways in the brain and spinal cord which will provide not only a greater understanding of these pathways but also potential therapies for chronic pain and other pain conditions.

Cat. #IT-07 SP-SAP

Species: mammalian

Mab-ZAP: A tool for evaluating antibody efficacy for use in an immunotoxin

Kohls MD, Lappi DA
Biotechniques 28(1):162-165, 2000.

Immunotoxins are useful tools for elimination of specific cell populations *in vitro* and *in vivo* for research and therapeutic applications. One of the factors limiting the use of immunotoxins is the selection of an appropriate antibody. Advanced Targeting Systems has created a reagent that allows researchers to select antibodies with the desired characteristics before an immuntoxin is made, purified, and assayed. Using a goat anti-murine IgG coupled to the ribosome-inactivating protein saporin, researchers can screen hundreds of antibodies in a time and cost-effective manner.

Cat. #IT-04 Mab-ZAP

Species: target of primary antibody

Selective impairment of corticotropin-releasing factor 1 (CRF_1) receptor-mediated function using CRF coupled to saporin

Maciejewski-Lenoir D, Heinrichs SC, Liu XJ, Ling N, Tucker A, Xie Q, Lappi DA, Grigoriadis DE
Endocrinology 141(2):498-504, 2000.

Corticotropin-releasing factor 1 (CRF_1) is a 41-amino acid peptide which mediates many of the body's behavioral, autonomic, immune, and endocrine responses to stress. Reduced activation of the CRF systems plays a role in a variety of psychiatric and metabolic disease states. Maciejewski-Lenoir *et al.* have developed a CRF-SAP targeted toxin that can eliminate cells expressing the CRF_1 but not $CRF_{2\alpha}$ receptors. These data indicate that CRF-SAP may be useful as a tool to examine receptor-selective impairment of CRF system function.

Cat. #IT-13 CRF-SAP

Species: mammalian

Antibody for human p75 LNTR identifies cholinergic basal forebrain of non-primate species

Tremere LA, Pinaud R, Grosche J, Hartig W, Rasmusson DD
NeuroReport 11(10):2177-2183, 2000.

192-SAP (Cat. #IT-01) is a highly successful reagent for eliminating cholinergic neurons in rats. Because the targeting antibody only recognizes rat p75, it is unable to be used in other species. Tremere *et al.* have stained basal forebrain sections with ME20.4, a monoclonal antibody to human p75 (Cat. #AB-N07) and found excellent cross-reactivity in dog, raccoon, cat, pig and rabbit. The authors state that an ME20.4-saporin conjugate could be used to produce cholinergic basal forebrain lesions in several species. Last quarter, ATS highlighted the use of ME20.4-SAP in the rabbit (*Targeting Trends* 1:1, 2000).

Cat. #AB-N07 αhuman p75 Mab

Species: human, primate, rabbit, sheep, dog, cat, pig, raccoon

Combined lesions of cholinergic and serotonergic neurons in the rat brain using 192 IgG-saporin and 5,7-dihydroxytryptamine: neurochemical and behavioural characterization

Lehmann O, Jeltsch H, Lehnhardt O, Pain L, Lazarus C, Cassel JC
Eur J Neurosci 12(1):67-79, 2000.

Lesioning of septohippocampal pathways has often been used as a model for Alzheimer's disease because these lesions alter cognitive capabilities such as spatial memory. Recent work in the behavioral neurosciences has shown that other neurotransmitter systems such as GABAergic, noradrenergic, and serotonergic systems also play a role in learning and memory. Lehmann *et al.* combined the effects of the cholinergic immunotoxin 192-SAP and the serotonergic toxin 5,7-dihydroxytryptamine to examine interactions between these two pathways. The effects of lesioning these two pathways in concert indicate that they both play roles in cognitive functions related to working memory.

Cat. #IT-01 192-SAP 2 µg/lateral ventricle

Species: rat

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