Targeting Topics: Recent Scientific References

(continued from page 3)

Selective deletion of antigen-specific CD8+ T cells by MHC class I tetramers coupled to the type I ribosome-inactivating protein saporin

Hess PR, Barnes C, Woolard MD, Johnson MD, Cullen JM, Collins EJ, Frelinger JA
Blood 109(8):3300-3307, 2007.

Autoreactive T cells are involved in autoimmune diseases such as type 1 diabetes and multiple sclerosis. It is thought that selective depletion of pathogenic cytotoxic T lymphocytes would be an effective treatment. The authors coupled biotinylated major histocompatibility complex tetramers to streptavidin-ZAP (Cat. #IT-27) and were able to eliminate specific T-cells both *in vitro* and *in vivo*, while leaving control T-cells intact. This technique may prove to be a useful therapy for immune-mediated diseases.

Specificity and generality of the involvement of catecholaminergic afferents in hypothalamic responses to immune insults

Schiltz JC, Sawchenko PE
J Comp Neurol 502(3):455-467, 2007.

Interleukin-1 (IL-1) is one of the cytokines that mediates interactions between the immune system and the central nervous system. 380-ng injections of anti-DBH-SAP (Cat. #IT-03) were made into the paraventricular nucleus (PVH) of rats. Saporin (Cat. #PR-01) and mouse IgG-SAP (Cat. #IT-18) were used as controls. Lesioned animals demonstrated reduced responses to administration of IL-1, but restraint stress responses were left intact. The data suggest that ascending catecholaminergic projections mediate PVH response to IL-1.

Effect of the destruction of cells containing the serotonin reuptake transporter on urethrogenital reflexes

Gravitt K, Marson L
J Sex Med 4(2):322-330, 2007.

Using the fact that the urethrogenital (UG) reflex is an autonomic and somatic response, the authors developed a model for ejaculatory-like reflexes. Anti-SERT-SAP (Cat. #IT-23) was bilaterally injected into the ventrolateral medulla of rats. 80 nl of a 1-μM solution removed inhibition of the UG reflex after acute spinal cord transection, while this reflex could not be evoked in control animals. The data suggest that SERT-expressing neurons in the ventral medulla are involved with the inhibition of UG reflex.

Spinal NK-1 receptor expressing neurons mediate opioid-induced hyperalgesia and antinociceptive tolerance via activation of descending pathways

Vera-Portocarrero LP, Zhang ET, King T, Ossipov MH, Vanderah TW, Lai J, Porreca F
Pain 129(1-2):35-45, 2007.

Although used for treatment of pain, opioids can induce hyperalgesia. In this work the authors evaluated the role that NK-1 receptor-expressing neurons play in morphine-induced hyperalgesia and spinal antinociceptive tolerance. Rats received a 5-μl intrathecal injection of 10 μM SP-SAP (Cat. #IT-07). Saporin (Cat. #PR-01) was used as a control. The results indicate that NK-1 receptor-expressing neurons play a critical role in morphine-induced neuroplastic changes.

Scavenger receptor-A-targeted leukocyte depletion inhibits peritoneal ovarian tumor progression

Bak SP, Walters JJ, Takeya M, Conejo-Garcia JR, Berwin BL
Cancer Res 67(10):4783-4789, 2007.

Vascular leukocytes (VLC) are immunosuppressive cells that facilitate tumor progression in ovarian cancer. One potential tumor therapy is to eliminate these cells. The authors determined that scavenger receptor-A is specifically expressed on VLCs. Mice were injected with tumor cells, as well as an anti-scavenger receptor-A antibody combined with Rat-ZAP (Cat. #IT-26). This was followed by additional treatment with the antibody-Rat-ZAP complex. Treatment with the immunotoxin eliminated VLCs, inhibited peritoneal tumor burden, and reduced ascites accumulation.

Combined damage to entorhinal cortex and cholinergic basal forebrain neurons, two early neurodegenerative features accompanying Alzheimer's disease: effects on locomotor activity and memory functions in rats

Traissard N, Herbeaux K, Cosquer B, Jeltsch H, Ferry B, Galani R, Pernon A, Majchrzak M, Cassel JC
Neuropsychopharmacol 32(4):851-871, 2007.

Cognitive decline in Alzheimer's disease is linked with the cholinergic system of the basal forebrain (BF), but damage is also found in the entorhinal cortex (EC). This work describes the use of 192-IgG-SAP (Cat. #IT-01) and L-N-methyl-D-aspartate to eliminate neurons in the BF and EC. 5 μg of 192-IgG-SAP was injected into the ventricle of rats. OX7-SAP (Cat. #IT-02) was used as a control. The combination of BF and EC lesions resulted in larger permanent deficits in learning and memory than either lesion alone.

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