Targeting Topics: Recent Scientific References

(continued from page 3)

Effect of nucleus basalis magnocellularis cholinergic lesions on fear-like and anxiety-like behavior.

Knox D, Berntson GG
Behav Neurosci 120(2):307-312, 2006.

Neurons in the nucleus basalis magnocellularis and substantia innominata (NBM/SI) may play a role in mediating some aspects of aversive states. The authors used 0.1 μg injections of 192-IgG-SAP (Cat. #IT-01) into the NBM/SI of rats to investigate the role these neurons play in elevated maze behavior and fear-conditioned behavioral suppression. The lesions did not affect the elevated maze behavior, but behavioral suppression was attenuated. The results indicate that NBM/SI cholinergic neurons are involved in the mediation of anxiety-like states.

Suppression of natural killer cell activity by morphine is mediated by the nucleus accumbens shell.

Saurer TB, Carrigan KA, Ijames SG, Lysle DT
J Neuroimmunol 173(1-2):3-11, 2006.

In this work the authors investigated the role of dopaminergic projections to the nucleus accumbens in modulation of immune parameters such as morphine-induced suppression of splenic natural killer (NK) cell activity. Studies have indicated that acute exposure to opioids decreases NK cell-mediated cytotoxicity. Rats received bilateral 0.5 μg-injections of anti-DAT-SAP (Cat. #IT-25) into the nucleus accumbens shell. Treated animals showed no immunosuppression upon administration of morphine, indicating that dopaminergic neurons in the nucleus accumbens play a major role in this pathway.

Myeloid precursors and acute myeloid leukemia cells express multiple CD33-related Siglecs.

Nguyen DH, Ball ED, Varki A
Exp Hematol 34(6):728-735, 2006.

Sialic acid-binding immunoglobulin-like lectins (Siglecs) are a family of cell surface receptors which bind to sialic acid. They are found mainly on leukocytes, and also on acute myeloid leukemia (AML) cells. The authors tested several anti-Siglec antibodies against U937 histiocytic lymphoma cells and THP-1 acute monocytic leukemia cells *in vitro*. When these antibodies were combined with Mab-ZAP (Cat. #IT-04), a second immunotoxin, the target cells were eliminated. The data suggest that Siglecs may be a viable target for AML therapy.

Descending facilitation from the rostral ventromedial medulla maintains visceral pain in rats with experimental pancreatitis.

Vera-Portocarrero LP, Yie JX, Kowal J, Ossipov MH, King T, Porreca F
Gastroenterology 130(7):2155-164, 2006.

Here the authors investigated the role of ascending or descending pathways in the mediation of pain caused by pancreatitis. Rats received 1.5 pmol injections of dermorphin-SAP (Cat. #IT-12) into each side of the rostral ventromedial medulla. Abdominal hypersensitivity was tested using von Frey filaments. Although the ablation of mu-opioid receptor-expressing neurons by dermorphin-SAP did not prevent the initial expression of pancreatitis pain, maintenance of this pain was absent. The data link maintenance of pancreatitis pain to descending pathways.

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
Neuropsychopharmacology [Epub Jun 7], 2006.

Two characteristics of Alzheimer's disease (AD) are cholinergic dysfunction in the basal forebrain, and neuronal damage in the entorhinal cortex. Using 5 μg intracerebroventricular (icv) injections of 192-IgG-SAP (Cat. #IT-01), and 2.3 μg icv injections of OX7-SAP (Cat. #IT-02), locomotor activity, working, and reference memory of rats were examined. Although 192-IgG-SAP lesions caused limited deficits, rats receiving both lesions exhibited several behaviors associated with AD. The authors suggest that combining these lesions may be a more accurate model for AD than 192-IgG-SAP alone.

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