

Targeting Topics: Recent Scientific References

Reviewed by Matthew Kohls

Neuropathic pain is maintained by brainstem neurons co-expressing opioid and cholecystokinin receptors

Zhang W, Gardell S, Zhang D, Xie JY, Agnes RS, Badghisi H, Hraby VJ, Rance N, Ossipov MH, Vanderah TW, Porreca F, Lai J *Brain* [Epub Dec 2], 2008.

It has been hypothesized that a subset of rostral ventromedial medulla (RVM) neurons co-expressing the cholecystokinin type 2 receptor and the mu-opioid receptor are responsible for the maintenance of neuropathic pain. Rats were treated with 50-ng bilateral RVM injections of Dermorphin-SAP (Cat. #IT-12), CCK-SAP (Cat. #IT-31), or saporin (Cat. #PR-01) as a control. Lesion of the RVM neurons prevented hyperalgesia in response to CCK treatment, and shortened abnormal pain states caused by sciatic nerve injury.

Cardiac Damage after Lesions of the Nucleus Tractus Solitarii

Nayate A, Moore SA, Weiss RM, Taktakishvili O, Lin LH, Talman WT *Am J Physiol Regul Integr Comp Physiol* [Epub Nov 19], 2008.

Specific neurokinin-1 (NK-1) receptor-expressing neuron lesions in the nucleus tractus solitarii (NTS) have led to the unexplained death of treated rats. In this work the authors examined cardiac specific parameters in rats after administration of 9.4 ng of SSP-SAP (Cat. #IT-11). The SSP-SAP was directed to either the dorsolateral and medial portions of the NTS, or into the brain stem outside of the NTS as a control. The data suggests that NTS lesion interrupting the baroreflex may induce cardiac arrhythmias and other myocardial changes leading to sudden cardiac death.



Endosialin protein expression and therapeutic target potential in human solid tumors: sarcoma versus carcinoma

Rouleau C, Curiel M, Weber W, Smale R, Kurtzberg L, Mascarello J, Berger C, Wallar G, Bagley R, Honma N, Hasegawa K, Ishida I, Kataoka S, Thurberg BL, Mehraein K, Horten B, Miller G, Teicher BA *Clin Cancer Res* 14(22):7223-7236, 2008.

Endosialin is an antigen expressed in many human cancer cell lines. As part of a wide-ranging study investigating clinical specimens, cell culture, and animal models, this group used Hum-ZAP (Cat. #IT-22) combined with a humanized anti-endosialin antibody in cell proliferation assays. Mouse IgG-SAP (Cat. #IT-18) was used as a control. The anti-endosialin antibody and Hum-ZAP were incubated together in equimolar concentrations then applied to cells in culture in 0.5 pM to 50 nM concentrations. Various cancers, including synovial sarcoma, fibrosarcoma, and osteosarcoma among others, were found to express endosialin.

Attentional demands for demonstrating deficits following intrabasalis infusions of 192 IgG-saporin

Burk JA, Lowder MW, Altemose KE *Behav Brain Res* 195(2):231-238, 2008.

Attentional processing has been shown to be dependent on basal forebrain cholinergic inputs to the cerebral cortex. In this work the authors wished to specify which components should be used to demonstrate deficits following the loss of these neurons. Rats received 200 ng intrabasalis infusions of 192-IgG-SAP (Cat. #IT-01). Testing of lesioned animals indicated that attentional deficits are due to increase of overall attentional task demands as opposed to any single task parameter.

Organization of food protection behavior is differentially influenced by 192 IgG-saporin lesions of either the medial septum or the nucleus basalis magnocellularis

Martin MM, Winter SS, Cheatwood JL, Carter LA, Jones JL, Weathered SL, Wagner SJ, Wallace DG *Brain Res* 1241:122-135, 2008.

In this work the authors used a food-protection model to investigate the role of cholinergic neurons in the processing of information from internal and external sources. Rats received the following amounts of 192-IgG-SAP (Cat. #IT-01): 15 ng or 20 ng into the medial septum (MS), or 20 ng into the nucleus basalis magnocellularis (NB). While the NB lesions reduced the number of successful food protection behaviors, lesions in the MS disrupted the temporal organization of this behavior.

(continued on page 4)

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