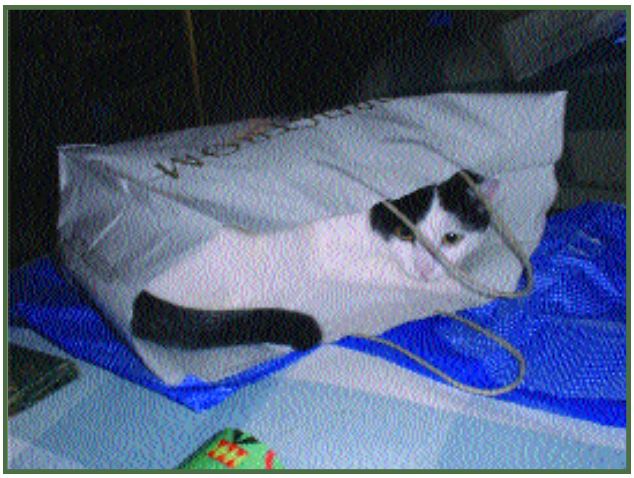
Targeting Tools: Featured Products

Dermorphin-SAP

Even though it only became available recently, Dermorphin-SAP (Cat. #IT-12) has already begun to help researchers unlock the mysteries of brain function. Dermorphin-SAP is a chemical conjugate between an analog of the frog skin peptide dermorphin and the ribosome-inactivating protein saporin. Dermorphin, a peptide of seven amino acids characterized by Ersparmer and his colleagues,[1] shows excellent affinity for the mu-opioid receptor, with a much lower affinity for the delta receptor and virtually no binding to the kappa receptor.[2] These properties make it an excellent targeting vehicle for cells that express the mu receptor.

Porreca and his group have used Dermorphin-SAP to characterize the descending pathway that transmits the signal for hyperalgesia and allodynia. In 2001, these workers published that injection of Dermorphin-SAP in the rostroventromedial medulla caused a specific loss of mu receptor neurons. In behavioral tests, rats treated with the material failed to exhibit the expected increase in sensitivity to non-noxious mechanical or noxious thermal stimuli applied to the paw after spinal nerve ligation,[3] the widely-accepted model of neuropathic pain. They went on to extend these studies in 2001 and determined that, while establishment of the neuropathic state is not dependent on these neurons, maintenance is.[4] Their work supports the idea that enhanced afferent discharge is an important component of the neuropathic state at both the initial stage and at subsequent stages after injury.

At the Society for Neuroscience meeting in Orlando last year, the group of Howard Fields, in collaboration with Porreca's group, presented data that the neurons eliminated by Dermorphin-SAP show properties of On and Off cells (see page 2). The former have been postulated to be important for nociceptive transmission, while the latter are inhibitory neurons.[5] Both are sensitive to morphine antagonists, and they express the mu receptor. Disruption of these neurons would be expected to cause changes in maintenance of neuropathic pain.



There's no mystery to unlock here.
Gangsta finds more fun with the bag than the gift!

Dermorphin-SAP has made a large contribution in the understanding of this extremely complex system. Perhaps Dermorphin-SAP can help you in dissecting the biological system with which you work.

REFERENCES

1. Montecucchi P-C, de Castiglione R, Piani S, Gozzini L, Ersparmer V (1981) *Intl J Pept Protein Res* 17(3):275-283.
2. Salvadori S, Marastoni M, Balboni G, Borea P, Tomatis R (1989) *Intl J Pept Prot Res* 33:94-102.
3. Porreca F, Burgess SE, Gardell LR, Vanderah TW, Malan TP Jr, Ossipov MH, Lappi DA, Lai J (2001) *J Neurosci* 21(14):5281-5288.
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5. Fields HL (2000) *Prog Brain Res* 122:245-253.

Fluorescent Conjugates

FL-01 Cy3-labeled 192-IgG

Specificity: rat $p75^{NTR}$ cells

Applications: immunofluorescence; immunocytochemistry

Reference: Wu *et al.* (2000) *J Neurosci* 20(10):3900-3908.

FL-02 FITC-labeled anti-SAP

Specificity: native and recombinant saporin

Applications: FACS analysis

Reference: Gerashchenko *et al.* (2001) *J Neurosci* 21(18):7273-83.

FL-03 Alexa488-labeled 192-IgG

Specificity: rat $p75^{NTR}$ cells

Applications: spectroscopy; anisotropy; microscopy; radioligand competition binding

Reference: Harikumar *et al.* (2002) *J Biol Chem* 277(21):18552-18560.

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