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# ProductInformation

**Morphiceptin hydrochloride**

Product Number **M 4264**
Storage Temperature -0 °C

## Product Description

Molecular Formula: $C_{28}H_{35}N_5O_5$
Molecular Weight: 521.6
CAS Number: 87777-29-5
Synonym: Tyr-Pro-Phe-Pro-$NH_2$;
β-casomorphin 1-4 amide

The tetrapeptide morphiceptin is the amide of a fragment of the milk protein β-casein. It is an agonist for morphine α-receptors with high specificity.[1] A study has investigated the binding of morphicetin and the antiopiate peptide Tyr-MIF-1 to rat brain membranes, as well as the interactions of morphicetin and Tyr-MIF-1 with each other.[2] A report has probed the action of morphicetin on rat hippocampal slices by electrophysiological methods and on hippocampal membrane preparations by ligand binding methods.[3]

Morphicetin (0.1 - 10 μM) has been shown to diminish slow and fast GABA-induced inward currents in *Lymnaea stagnalis* L. neurons.[4] Morphiceptin and other opioid tetrapeptides have been used to inhibit spontaneous firing in rat locus coeruleus neurons, with morphiceptin having an $IC_{50}$ of 65 nM.[5] Pretreatment of chick brain cells with morphicetin has been shown to lead to increased apoptosis upon application of staurosporine or wortmannin.[6]

## Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

## Preparation Instructions

This product is soluble in water (25 mg/ml) and in methanol (25 mg/ml), yielding a clear, colorless solution in both instances.

## References

1. Chang, K. J., et al., Morphiceptin ($NH_4$-Tyr-Pro-Phe-Pro-$COHN_2$): a potent and specific agonist for morphine (μ) receptors. Science, **212(4490)**, 75-77 (1981).
2. Zadina, J. E., and Kastin, A. J., Interactions between the antiopiate Tyr-MIF-1 and the μ opiate morphiceptin at their respective binding sites in brain. Peptides, **6(5)**, 965-970 (1985).
3. Bostock E., et al., Mu opioid receptors participate in the excitatory effect of opiates in the hippocampal slice. J.. Pharmacol. Exp. Ther. **231(3)**, 512-517 (1984).
4. Rozsa, K. S., et al., Met-enkephalin and morphiceptin modulate a GABA-induced inward current in the CNS of *Lymnaea stagnalis L.*. Gen. Pharmacol., **27(8)**, 1337-1345 (1996).
5. Yang, Y. R., et al., Structure-activity relationships of naturally occurring and synthetic opioid tetrapeptides acting on locus coeruleus neurons. Eur. J. Pharmacol., **372(3)**, 229-236 (1999).
6. Goswami, R., et al., Cyclic AMP protects against staurosporine and wortmannin-induced apoptosis and opioid-enhanced apoptosis in both embryonic and immortalized (F-11κ7) neurons. J. Neurochem., **70(4)**, 1376-1382 (1998).

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