

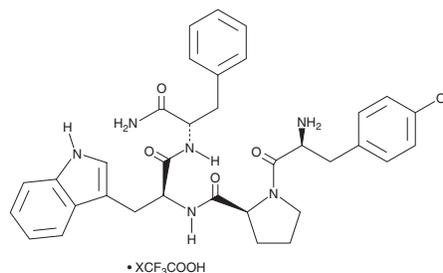
PRODUCT INFORMATION



Endomorphin 1 (trifluoroacetate salt)

Item No. 23280

Formal Name: L-tyrosyl-L-prolyl-L-tryptophyl-L-phenylalaninamide, trifluoroacetate salt
Synonym: Tyr-Pro-Trp-Phe-NH₂
MF: C₃₄H₃₈N₆O₅ • XCF₃COOH
FW: 610.7
Purity: ≥95%
Supplied as: A lyophilized powder
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Endomorphin 1 (trifluoroacetate salt) is supplied as a lyophilized powder. A stock solution may be made by dissolving the endomorphin 1 (trifluoroacetate salt) in the solvent of choice. Endomorphin 1 (trifluoroacetate salt) is soluble in the organic solvent formic acid, which should be purged with an inert gas, at a concentration of approximately 1 mg/ml.

Description

Endomorphin 1 is an endogenous neuropeptide and μ -opioid receptor agonist ($K_i = 0.36$ nM) that has analgesic, positive reinforcing, and gastrointestinal properties.^{1,2} It is found in the brain and, to a lesser extent, in the spinal cord.³ It is selective for μ - over δ - and κ -opioid receptors ($K_{iS} = 1,506$ and $5,428$ nM, respectively).¹ Endomorphin 1 also binds to mouse brain membranes and rat recombinant μ -opioid receptors expressed in CHO cells ($K_{iS} = 0.94$ and 0.66 nM, respectively).² It inhibits cAMP accumulation induced by forskolin in CHO cells expressing rat recombinant μ -opioid receptors and in SH-SY5Y human neuroblastoma cells ($IC_{50S} = 9.33$ and 19.1 nM, respectively).⁴ In mice, endomorphin 1 increases analgesia in a radiant heat tail-flick assay following intracerebroventricular or intrathecal administration ($ED_{50S} = 4.75$ and 0.726 μ g, respectively) and induces conditioned place preference when administered intracerebroventricularly at a dose of 10 μ g.^{2,5} Endomorphin 1 (12 μ g, i.c.v.) also decreases gastrointestinal transit time in mice.²

References

1. Zadina, J.E., Hackler, L., Ge, L.J., *et al.* A potent and selective endogenous agonist for the μ -opioid receptor. *Nature* **386(6624)**, 499-502 (1997).
2. Goldberg, I.E., Rossi, G.C., Letchworth, S.R., *et al.* Pharmacological characterization of endomorphin-1 and endomorphin-2 in mouse brain. *J. Pharmacol. Exp. Ther.* **286(2)**, 1007-1013 (1998).
3. Martin-Schild, S., Gerall, A.A., Kastin, A.J., *et al.* Differential distribution of endomorphin 1- and endomorphin 2-like immunoreactivities in the CNS of the rodent. *J. Comp. Neurol.* **405(4)**, 450-471 (1999).
4. Harrison, C., McNulty, S., Smart, D., *et al.* The effects of endomorphin-1 and endomorphin-2 in CHO cells expressing recombinant μ -opioid receptors and SH-SY5Y cells. *Br. J. Pharmacol.* **128(2)**, 472-478 (1999).
5. Wu, H.-e., MacDougall, R.S., Clithero, A.D., *et al.* Opposite conditioned place preference responses to endomorphin-1 and endomorphin-2 in the mouse. *Neurosci. Lett.* **365(3)**, 157-161 (2004).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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