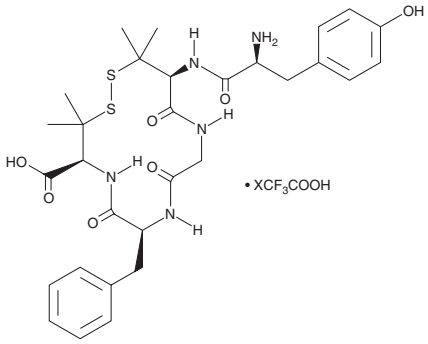
PRODUCT INFORMATION

DPDPE (trifluoroacetate salt)

Item No. 23184



Formal Name:	L-tyrosyl-3-mercapto-D-valylglycyl-L-phenylalanyl-3-mercapto-D-valine, cyclic (2→5)-disulfide, trifluoroacetate salt
Synonym:	[D-Pen^2,D-Pen^5]Enkephalin
MF:	$C_{30}H_{39}N_5O_7S_2 \bullet XCF_3COOH$
FW:	645.8
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

DPDPE (trifluoroacetate salt) is supplied as a lyophilized powder. A stock solution may be made by dissolving the DPDPE (trifluoroacetate salt) in water. The solubility of DPDPE (trifluoroacetate salt) in water is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

DPDPE is a synthetic enkephalin peptide and an agonist of δ_1-opioid receptors (K_i = 2.7 nM for the rat receptors).[1] It is selective for δ-opioid receptors over μ- and κ-opioid receptors (K_is = 713 and >1,500 nM, respectively, for the rat receptors). *In vivo*, DPDPE (4.5 nmol i.c.v.) increases the latency to tail withdrawal in the tail flick test in mice, an effect that can be reversed by the δ_1-opioid receptor antagonist [D-Ala^2,Leu^5,Cys^6]enkephalin (DALCE) but not the δ_2-opioid receptor antagonist natrindole-5'-isocynate.[1,2] DPDPE (140 nmol, i.c.v) increases the seizure threshold in a rat model of flurothyl-induced seizures and is protective against seizures induced by maximal electroshock (MES) in rats.[3] It reduces formalin-induced paw licking in rats in a dose-dependent manner.[4] *In vivo*, DPDPE (15 μg, i.c.v.) increases latency to tail withdrawal in wild-type, δ-opioid receptor knockout (*DOR*$^{-/-}$), and μ-opioid receptor knockout (*MOR*$^{-/-}$) mice, but the latter effect can be prevented by the μ-opioid receptor antagonist CTOP (Item No. 27377).[5]

References

1. Corbett, A.D., Gillan, M.G.C., Kosterlitz, H.W., *et al.* Selectivities of opioid peptide analogues as agonists and antagonists at the *δ*-receptor. *Br. J. Pharmacol.* **83(1)**, 271-279 (1984).
2. Vanderah, T., Takemori, A.E., Sultana, M., *et al.* Interaction of [D-Pen^2,D-Pen^5]enkephalin and [D-Ala^2,Glu^4] deltorphin with δ-opioid receptor subtypes *in vivo*. *Eur. J. Pharmacol.* **252(2),** 133-137 (1994).
3. Tortella, F.C., Echevarria, E., Robles, L., *et al.* Anticonvulsant effects of mu (DAGO) and delta (DPDPE) enkephalins in rats. *Peptides* **9(5)**, 1177-1181 (1988).
4. Calcagnetti, D.J., Helmstetter, F.J., and Fanselow, M.S. Analgesia produced by centrally administered DAGO, DPDPE and U50488H in the formalin test. *Eur. J. Pharmacol.* **153(1)**, 117-122 (1988).
5. Scherrer, G., Befort, K., Contet, C., *et al.* The delta agonists DPDPE and deltorphin II recruit predominantly mu receptors to produce thermal analgesia: A parallel study of mu, delta and combinatorial opioid receptor knockout mice. *Eur. J. Neurosci.* **19(8)**, 2239-2248 (2004).

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