

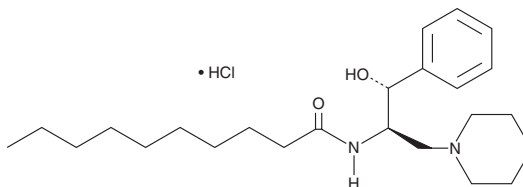
PRODUCT INFORMATION



(+)-D-threo-PDMP (hydrochloride)

Item No. 10178

CAS Registry No.: 139889-62-6
Formal Name: N-[(1R,2R)-2-hydroxy-1-(4-morpholinylmethyl)-2-phenylethyl]-decanamide, monohydrochloride
Synonym: D-PDMP
MF: C₂₃H₃₈N₂O₃ • HCl
FW: 427.0
Purity: ≥98%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

(+)-D-threo-PDMP (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the (+)-D-threo-PDMP (hydrochloride) in the solvent of choice, which should be purged with an inert gas. (+)-D-threo-PDMP (hydrochloride) is soluble in ethanol and methanol.

Description

(+)-D-threo-PDMP is a ceramide analog and is one of the four possible stereoisomers of PDMP (Item No. 62595).¹ (+)-D-threo-PDMP is an inhibitor of glucosylceramide synthase.^{2,3} It inhibits glucosylceramide synthase by 50% when used at a concentration of 5 μM in an enzyme assay.² (+)-D-threo-PDMP is the active component of racemic DL-threo-PDMP (Item No. 10005276). *In vitro*, (+)-D-threo-PDMP inhibits the synthesis of glucosylceramide synthase and lactosylceramide in B16 melanoma cells when used at a concentration of 25 μM and inhibits cell binding to laminin and collagen when used at concentrations of 10 and 25 μM.⁴ It also inhibits β-1,4-galactosyltransferase 6 (B4GALT6) and prevents lactosylceramide synthesis, which is a promotor of neuroinflammation in mice during chronic experimental autoimmune encephalomyelitis (EAE), a model of multiple sclerosis.⁵ (+)-D-threo-PDMP inhibits ganglioside biosynthesis, reduces long-term potentiation (LTP) in mouse hippocampal CA1 neurons, and impairs learning in the four-pellet taking test in mice.⁶

References

1. Vunnam, R.R. and Radin, N.S. Analogs of ceramide that inhibit glucocerebrosidase in mouse brain. *Chem. Phys. Lipids* **26(3)**, 265-278 (1980).
2. Abe, A., Inokuchi, J.-i., Jimbo, M., *et al.* Improved inhibitors of glucosylceramide synthase. *J. Biochem.* **111(2)**, 191-196 (1992).
3. Inokuchi, J. and Radin, N.S. Preparation of the active isomer of 1-phenyl-2-decanoylamino-3-morpholino-1-propanol, inhibitor of murine glucocerebrosidase synthetase. *J. Lipid Res.* **28(5)**, 565-571 (1987).
4. Inokuchi, J.-i., Momosaki, K., Shimeno, H., *et al.* Effects of D-threo-PDMP, an inhibitor of glucosylceramide synthetase, on expression of cell surface glycolipid antigen and binding to adhesive proteins by B16 melanoma cells. *J. Cell. Physiol.* **141(3)**, 573-583 (1989).
5. Mayo, L., Trauger, S.A., Blain, M., *et al.* Regulation of astrocyte activation by glycolipids drives chronic CNS inflammation. *Nat. Med.* **20(10)**, 1147-1156 (2014).
6. Fujiwara, H., Ikarashi, K., Yamazaki, Y., *et al.* Impairment of hippocampal long-term potentiation and failure of learning in mice treated with D-threo-1-phenyl-2-decanoylamino-3-morpholino-1-propanol. *Biomed Res.* **33(5)**, 265-271 (2012).

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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