

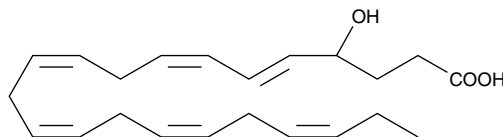
Product Information



(±)4-HDoHE

Item No. 33200

CAS Registry No.: 90906-40-4
Formal Name: (±)4-hydroxy-5E,7Z,10Z,13Z,16Z,19Z-docosahexaenoic acid
Synonym: 4-hydroxy Docosahexaenoic Acid
MF: C₂₂H₃₂O₃
FW: 344.5
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A solution in ethanol
UV/Vis: λ_{max}: 236 nm ε: 20,000



Laboratory Procedures

For long term storage, we suggest that (±)4-HDoHE be stored as supplied at -20°C. It should be stable for at least two years.

(±)4-HDoHE is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. (±)4-HDoHE is miscible in these solvents.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of (±)4-HDoHE is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of (±)4-HDoHE in PBS (pH 7.2) is approximately 0.8 mg/ml. We do not recommend storing the aqueous solution for more than one day.

(±)4-HDoHE is an autoxidation product of docosahexaenoic acid (DHA) *in vitro*.^{1,2} It is also produced from incubations of DHA in rat liver, brain, and intestinal microsomes.³⁻⁵ Enzymatic transformation of DHA by RBL-1 cells also produces 4-HDoHE.⁶ However, the enzymatic product is most likely the S-isomer. (±)4-HDoHE is a potential marker of oxidative stress in brain and retina where DHA is an abundant polyunsaturated fatty acid.

References

1. VanRollins, M. and Murphy, R.C. Autooxidation of docosahexaenoic acid: Analysis of ten isomers of hydroxydocosahexaenoate. *J. Lipid Res.* **25**, 507-517 (1984).
2. Reynaud, D., Thickitt, C.P., and Pace-Asciak, C.R. Facile preparation and structural determination of monohydroxy derivatives of docosahexaenoic acid (HDoHE) by α-tocopherol-directed autoxidation. *Anal. Biochem.* **214**, 165-170 (1993).
3. VanRollins, M., Baker, R.C., Sprecher, H., *et al.* Oxidation of docosahexaenoic acid by rat liver microsomes. *J. Biol. Chem.* **259**, 5776-5783 (1984).
4. Yamane, M., Abe, A., and Yamane, S. High-performance liquid chromatography-thermospray mass spectrometry of epoxy polyunsaturated fatty acids and epoxyhydroxy polyunsaturated fatty acids from an incubation mixture of rat tissue homogenate. *Journal of Chromatography B* **652**, 123-136 (1994).
5. Kim, H.Y., Karanian, J.W., Shingu, T., *et al.* Stereochemical analysis of hydroxylated docosahexaenoates produced by human platelets and rat brain homogenate. *Prostaglandins* **40**, 473-491 (1990).
6. Corey, E.J., Shih, C., and Cashman, J.R. Docosahexaenoic acid is a strong inhibitor of prostaglandin but not leukotriene biosynthesis. *Proc. Natl. Acad. Sci. USA* **80**, 3581-3584 (1983).

Related Products

(±)5-HEPE - Item No. 32200 • (±)8-HEPE - Item No. 32340 • (±)11-HEPE - Item No. 32500 • (±)12-HEPE - Item No. 32540 • (±)15-HEPE - Item

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY. NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

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