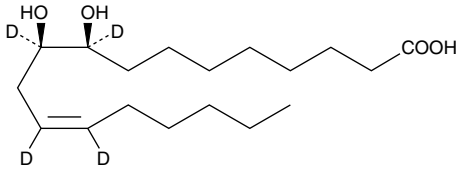
Product Information

(±)9,10-DiHOME-d_4

Item No. 10009993

Formal Name: 9,10-dihydroxy-12Z-octadecenoic-9,10,12,13-d_4 acid
Synonyms: Leukotoxin diol-d_4
MF: $C_{18}H_{30}D_4O_4$
FW: 318.5
Chemical Purity: ≥98%
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0
Stability: ≥1 year at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

(±)9,10-DiHOME-d_4 contains four deuterium atoms at the 9, 10, 12, and 13 positions. It is intended for use as an internal standard for the quantification of (±)9,10-DiHOME by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that (±)9,10-DiHOME-d_4 be stored as supplied at -20°C. It will be stable for approximately one year.

(±)9,10-DiHOME-d_4 is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of (±)9,10-DiHOME-d_4 in is these solvents is approximately 20 mg/ml.

(±)9,10-DiHOME-d_4 is used as an internal standard for the quantification of (±)9,10-DiHOME by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Leukotoxin is the 9(10)-epoxide of linoleic acid, generated by neutrophils during the oxidative burst.[1-3] This unstable compound is rapidly degraded by epoxide hydrolases to form the diol, 9,10-DiHOME.[4] Mitochondrial dysfunction, vasodilation, and apoptosis are features of leukotoxin toxicity. In renal proximal tubular cells, the diol hydrolysis products of leukotoxin, such as 9,10-DiHOME, have been directly implicated as the cytotoxic agent responsible for cell death.[5]

References

1. Hayakawa, M., Sugiyama, S., Takamura, T., *et al.* Neutrophils biosynthesize leukotoxin, 9,10-epoxy-12-octadecenoate. *Biochem. Biophys. Res. Commun.* **137**, 424-430 (1986).
2. Ishizaki, T., Takahashi, H., Ozawa, T., *et al.* Leukotoxin, 9,10-epoxy-12-octadecenoate causes pulmonary vasodilation in rats. *J. Am. Physiol. Soc.* **1040**, L123-L128 (1995).
3. Ozawa, T., Hayakawa, M., Takamura, T., *et al.* Biosynthesis of leukotoxin, 9,10-epoxy-12 octadecenoate, by leukocytes in lung lavages of rat after exposure to hyperoxia. *Biochem. Biophys. Res. Commun.* **134**, 1071-1078 (1986).
4. Greene, J.F., Williamson, K.C., Newman, J.W., *et al.* Metabolism of monoepoxides of methyl linoleate: bioactivation and detoxification. *Arch. Biochem. Biophys.* **376**, 420-432 (2000).
5. Moran, J.H., Weise, R., Schnellmann, R.G., *et al.* Cytotoxicity of linoleic acid diols to renal proximal tubular cells. *Toxicol. Appl. Pharmacol.* **146**, 53-59 (1997).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/10009993

Cayman Chemical

Mailing address
1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone
(800) 364-9897
(734) 971-3335

Fax
(734) 971-3640

E-Mail
custserv@caymanchem.com

Web
www.caymanchem.com