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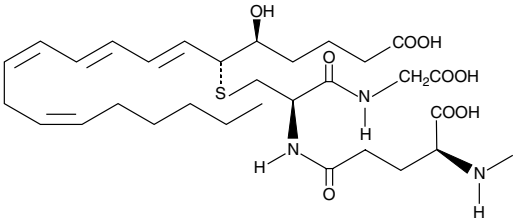
Product Information

N-methyl Leukotriene C_4

Item No. 13390

CAS Registry No.: 131391-65-6
Formal Name: N-methyl-5S-hydroxy-6R-(S-glutathionyl)-7E,9E,11Z,14Z-eicosatetraenoic acid
Synonyms: N-methyl LTC_4
MF: $C_{31}H_{49}N_3O_9S$
FW: 639.8
Purity: ≥97%
Stability: ≥1 year at -80°C
Supplied as: A solution in ethanol
Miscellaneous: Light Sensitive



Laboratory Procedures

For long term storage, we suggest that N-methyl leukotriene C_4 (N-methyl LTC_4) be stored as supplied at -80°C. It should be stable for at least one year.

N-methyl LTC_4 is supplied as a solution in ethanol. A stock solution may be made by dissolving the ethanol in an organic solvent purged with an inert gas. N-methyl LTC_4 is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of N-methyl LTC_4 in these solvents is approximately 50 mg/ml.

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 N-methyl LTC_4 is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of N-methyl LTC_4 in PBS, pH 7.2, is approximately 100 µg/ml. We do not recommend storing the aqueous solution for more than one day.

Produced by neutrophils, macrophages, mast cells, and by transcellular metabolism in platelets, LTC_4 is the parent cysteinyl leukotriene formed by the LTC_4 synthase-catalyzed conjugation of glutathione to LTA_4.[1] It is one of the constituents of slow-reacting substance of anaphylaxis (SRS-A) and exhibits potent smooth muscle contracting activity.[2] LTC_4, however, is rapidly metabolized to LTD_4 and LTE_4, which makes the characterization of LTC_4 pharmacology difficult.[3] N-methyl LTC_4 is a synthetic analog of LTC_4 that is not readily metabolized to LTD_4 and LTE_4.[4] It acts as a potent and selective $CysLT_2$ receptor agonist exhibiting EC_{50} values of 122 and > 2,000 nM at the human $CysLT_2$ and $CysLT_1$ receptors, respectively.[5] It has essentially the same potency as LTC_4 at both the human and murine receptors $CysLT_2$ receptors. N-methyl LTC_4 is potent and active *in vivo*, causing vascular leak in mice overexpressing the human $CysLT_2$ receptor but not in $CysLT_2$ receptor knockout mice.[5]

References

1. Maclouf, J.A. and Murphy, R.C. Transcellular metabolism of neutrophil-derived leukotriene A_4 by human platelets. A potential cellular source of leukotriene C_4. *J. Biol. Chem.* **263**, 174-181 (1988).
2. Piper, P.J. Formation and actions of leukotrienes. *Physiol. Rev.* **64**, 744-761 (1984).
3. Campbell, B.J., Baker, S.F., Shukla, S.D., *et al.* Bioconversion of leukotriene D_4 by lung dipeptidase. *Biochim. Biophys. Acta* **1042**, 107-112 (1990).
4. Gareau, Y., Zamboni, R., and Wong, A.W. Total synthesis of N-methyl LTC_4: A novel methodology for the monomethylation of amines. *J. Org. Chem.* **58**, 1582-1585 (1993).
5. Yan, D., Stocco, R., Sawyer, N., *et al.* Differential signaling of cysteinyl leukotrienes and a novel cysteinyl leukotriene receptor $_2$ ($CysLT_2$) agonist, N-methyl-leukotriene C_4, in calcium reporter and beta arrestin assays. *Mol. Pharmacol.* (2010).

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