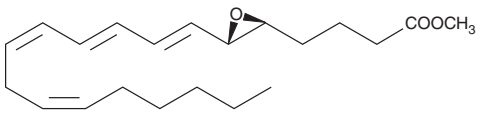
# PRODUCT INFORMATION

## Leukotriene $A_4$ methyl ester

*Item No. 20010*

**CAS Registry No.:** 73466-12-3
**Formal Name:** 5S-*trans*-5,6-oxido-7E,9E,11Z,14Z-eicosatetraenoic acid, methyl ester
**Synonym:** $LTA_4$ methyl ester
**MF:** $C_{21}H_{32}O_3$
**FW:** 332.5
**Purity:** ≥97%
**UV/Vis.:** $\lambda_{max}$: 279 nm ε: 49,000
**Supplied as:** A solution in hexane/1% triethylamine (TEA)
**Storage:** -80°C
**Stability:** ≥1 year
**Special Conditions:** Light Sensitive




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

### Laboratory Procedures

Leukotriene $A_4$ methyl ester ($LTA_4$ methyl ester) methyl ester is supplied as a solution in in hexane containing 1% triethylamine. The naturally occurring free acid of $LTA_4$ is too unstable for storage. The methyl ester is provided because of its increased stability. However, both the free acid and the methyl ester decompose rapidly under acidic conditions. Before performing biological experiments, using $LTA_4$ free acid, the $LTA_4$ methyl ester must be hydrolyzed to $LTA_4$. Alkaline hydrolysis of $LTA_4$ methyl ester can be performed as follows:

Prepare a hydrolysis solution consisting of degassed acetone (8 ml) and 0.25 M NaOH (2 ml) and cool it to 0°C. Evaporate the hexane solution of $LTA_4$ methyl ester just to dryness under nitrogen and immediately add 4 ml of the hydrolysis solution per 1 mg of $LTA_4$ methyl ester. Allow the reaction to stand under an inert atmosphere of nitrogen or argon at 22°C for 40 minutes. The resulting basic solution of $LTA_4$ will be stable for about 60 minutes at room temperature or for 12 hours at 0°C. Dilutions of this $LTA_4$ stock solution can be made directly into aqueous buffers. Incorporation of albumin in the buffers will increase the stability of $LTA_4$ in aqueous media.[1] Solutions not used within 12 hours of hydrolysis should be discarded.

### Description

$LTA_4$ is synthesized in mast cells, eosinophils, and neutrophils from arachidonic acid by 5-lipoxygenase, which exhibits both lipoxygenase and $LTA_4$ synthase activities.[2,3] $LTA_4$ is rapidly metabolized by $LTA_4$ hydrolase or $LTC_4$ synthase to $LTB_4$ or $LTC_4$, respectively.[3] $LTA_4$ from leukocytes is known to undergo transcellular metabolism in platelets, erythrocytes, and endothelial cells.[4] Further metabolism of $LTA_4$ by 15-lipoxygenase leads to lipoxin biosynthesis.[3] $LTA_4$ as a free acid is highly unstable. The methyl ester is stable and can be readily hydrolyzed to the free acid as needed.

### References

1. Manganaro, F., Gaudette, Y., Pombo-Gentile, A., *et al. Prostaglandins* **36**, 859-874 (1988).
2. Shimizu, T., Rådmark, O., and Samuelsson, B. *Proc. Nat. Acad. Sci USA* **81**, 689-693 (1984).
3. Samuelsson, B., Dahlén, S.-E., Lindgren, J.Å., *et al. Science* **237**, 1171-1176 (1987).
4. Maclouf, J.A. and Murphy, R.C. *J. Biol. Chem.* **263**, 174-181 (1988).



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