

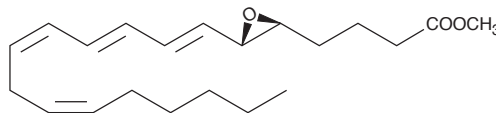
Product Information



Leukotriene A₄ methyl ester

Catalog No. 20010

CAS Registry No: 73466-12-3
Formal Name: 5*S*-*trans*-5,6-oxido-7*E*,9*E*,11*Z*,14*Z*-eicosatetraenoic acid, methyl ester
MF: C₂₁H₃₂O₃
FW: 332.5
Purity: ≥ 97%
Stability: ≥ 1 year at -80°C
Supplied as: A solution in hexane/1% triethylamine
UV/Vis: λ_{max}: 279 nm ε: 49,000



Laboratory Procedures

For long term storage, we suggest that leukotriene A₄ methyl ester (LTA₄ methyl ester) be stored as supplied at -80°C. It will be stable for at least one year.

LTA₄ methyl ester is supplied as a solution in hexane containing 1% triethylamine. The naturally occurring free acid of LTA₄ 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 any biological experiments, LTA₄ methyl ester should be hydrolyzed to LTA₄. Alkaline hydrolysis of LTA₄ 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 LTA₄ methyl ester just to dryness under nitrogen and immediately add 4 ml of the hydrolysis solution per 1 mg of LTA₄ methyl ester (e.g., 400 μl per 100 μg vial). Allow the reaction to stand under an inert atmosphere of nitrogen or argon at 22°C for 40 minutes. The resulting basic solution of LTA₄ will be stable for about 60 minutes at room temperature or for 12 hours at 0°C. Dilutions of this LTA₄ stock solution can be made directly into aqueous buffers. Incorporation of albumin in the buffers will increase the stability of LTA₄ in aqueous media.¹ Solutions not used within 12 hours of hydrolysis should be discarded.

LTA₄ is synthesized in mast cells, eosinophils, and neutrophils from arachidonic acid by 5-lipoxygenase, which exhibits both lipoxygenase and LTA₄ synthase activities.^{2,3} LTA₄ is rapidly metabolized by LTA₄ hydrolase or LTC₄ synthase to LTB₄ or LTC₄, respectively.³ LTA₄ from leukocytes is known to undergo transcellular metabolism in platelets, erythrocytes, and endothelial cells.⁴ Further metabolism of LTA₄ by 15-lipoxygenase leads to lipoxin biosynthesis.³ LTA₄ 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.* Purification and characterization of leukotriene A₄ epoxide hydrolase from dog lung. *Prostaglandins* **36**, 859-874 (1988).
2. Shimizu, T., Rådmark, O., and Samuelsson, B. Enzyme with dual lipoxygenase activities catalyzes leukotriene A₄ synthesis from arachidonic acid. *Proc. Nat. Acad. Sci USA* **81**, 689-693 (1984).
3. Samuelsson, B., Dahlén, S.-E., Lindgren, J.Å., *et al.* Leukotrienes and lipoxins: Structures, biosynthesis, and biological effects. *Science* **237**, 1171-1176 (1987).
4. Maclouf, J.A. and Murphy, R.C. Transcellular metabolism of neutrophil-derived leukotriene A₄ by human platelets. A potential cellular source of leukotriene C₄. *J. Biol. Chem.* **263**, 174-181 (1988).

Related Products

Leukotriene B₄ - Cat. No. 20110 • Leukotriene C₄ - Cat. No. 20210 • 5-Lipoxygenase (potato) - Cat. No. 60400 • 5-Lipoxygenase (human recombinant) - Cat. No. 60402 • 15-Lipoxygenase (soybean P1) - Purified - Cat. No. 60700 • 15-Lipoxygenase (soybean P4) - Cat. No. 60710 • 15-Lipoxygenase (soybean P1) - Cat. No. 60712 • Arachidonic Acid - Cat. No. 90010 • Lipoxin A₄ - Cat. No. 90410 • Lipoxin B₄ - Cat. No. 90420 • Leukotriene A₄-d₄ methyl ester - Cat. No. 320011

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

WARNING: THIS PRODUCT IS NOT INTENDED OR APPROVED FOR HUMAN OR VETERINARY USE. USE OF THIS PRODUCT FOR HUMAN OR ANIMAL TESTING IS EXTREMELY HAZARDOUS AND MAY RESULT IN DISEASE, SEVERE INJURY, OR DEATH.

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 under separate cover to the MSDS supervisor at your institution.

WARRANTY AND LIMITATION OF REMEDY

Cayman Chemical Company makes **no warranty or guarantee** of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman **warrants only** to the original customer that the material will **meet our specifications at the time of delivery.**

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have **any obligation or liability**, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's **exclusive remedy** and Cayman's sole liability hereunder shall be limited to a **refund** of the purchase price, or at Cayman's option, the **replacement**, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our **Warranty and Limitation of Remedy** located on our website and in our catalog.

Copyright Cayman Chemical Company, 02/20/2006