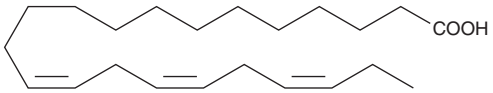
PRODUCT INFORMATION

Docosatrienoic Acid

Item No. 90170

CAS Registry No.: 28845-86-5
Formal Name: 13Z,16Z,19Z-docosatrienoic acid
Synonyms: *cis*-13,16,19-Docosatrienoic Acid, FA 22:3
MF: $C_{22}H_{38}O_2$
FW: 334.5
Purity: ≥98%
Supplied as: A solution in ethanol
Storage: -20°C
Stability: ≥2 years
Special Conditions: Oxygen and light sensitive



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

Laboratory Procedures

Docosatrienoic acid 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. The solubility of docosatrienoic acid in these solvents is approximately 100 mg/ml. Docosatrienoic acid is also soluble in 0.15 M Tris-HCl, pH 8.5, at approximately 1 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 docosatrienoic acid is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of docosatrienoic acid in PBS, pH 7.2, is approximately 100 µg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Docosatrienoic acid is a rare ω-3 fatty acid not readily detected in normal phospholipid PUFA pools. It is a polyunsaturated version of the fatty acid docosanoic acid (Item No. 9000338). Docosatrienoic acid inhibits [^{3}H]-LTB_4 binding to pig neutrophils at a concentration of 5 µM.[1] It also dose-dependently inhibits the activity of mammalian DNA polymerases and human topoisomerases I and II, potentially by binding directly to the hydrophobic region of the enzymes.[2] The *cis* configuration of the double bonds is important for this activity, and the carboxyl group is required as the methyl ester version has no activity at these enzymes.

References

1. Yagaloff, K.A., Franco, L., Simko, B., *et al.* Essential fatty acids are antagonists of the leukotriene B4 receptor. *Prostaglandins, Leukot. Essent. Fatty Acids* **52(5)**, 293-297 (1995).
2. Yonezawa, Y., Hada, T., Uryu, K., *et al.* Inhibitory action of C22-fatty acids on DNA polymerases and DNA topoisomerases. *Int. J. Mol. Med.* **18(4)**, 583-588 (2006).

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