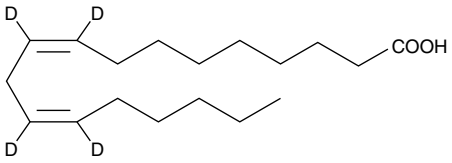
Product Information

Linoleic Acid-d_4

Item No. 390150

CAS Registry No.: 79050-23-0
Formal Name: 9Z,12Z-octadecadienoic-9,10,12,13-d_4 acid
MF: $C_{18}H_{28}D_4O_2$
FW: 284.5
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

Linoleic acid-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 of linoleic acid by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that linoleic acid-d_4 be stored as supplied at -20°C. It will be stable for at least one year.

Linoleic acid-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 purged with an inert gas can be used. The solubility of linoleic acid-d_4 in these solvents is at least 100 mg/ml. Linoleic acid-d_4 is stable for at least one yar in these solvents if stored at -20°C.

Linoleic acid-d_4 is used as an internal standard for the quantification of linoleic acid by stable isotope dilution mass spectrometry. The accuracy of the sample weight in this vial is between 5% over and 2% under. If better precision is required, the deuterated standard should be quantified against a more precisely weighed unlabeled standard of linoleic acid by construction a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Linoleic acid is a polyunsaturated fatty acid (PUFA) found in plant tissues and most cooking oils. Deficiencies in the essential fatty acid linoleic acid are linked to coronary heart disease, growth retardation, and allergies.[1,2] Linoleic acid can be metabolized by prostaglandin H synthases (PGHS) to form 9- and 13-HODE.[3] The K_m is 12 µM for human PGHS-1 and 27 µM for PGHS-2.[3]

References

1. Soyland, E., Fund, J., Rajka, G., *et al.* Effect of dietary supplementation with very-long-chain *n*-3 fatty acids in patients with psoraisis. *N. Engl. J. Med.* **328,** 1812-1816 (1993).
2. Hashimoto, A., Katagiri, M., Torii, S., *et al.* Effect of the dietary alpha-linolenate/linoleate balance on leukotriene production and histamine release in rats. *Prostaglandins* **36,** 3-15 (1988).
3. Laneuville, O., Breuer, D.K., Xu, N., *et al.* Fatty acid substrate specificities of human prostaglandin-endoperoxide H synthase-1 and -2. Formation of 12-hydroxy-(9Z,13E/Z,15Z)-octadecatrienoic acids from α-linolenic acid. *J. Biol. Chem.* **270,** 19330-19336 (1995).

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