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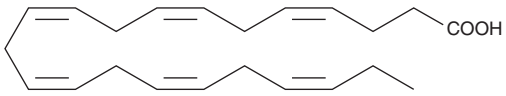
PRODUCT INFORMATION

Docosahexaenoic Acid

Item No. 90310

CAS Registry No.: 6217-54-5
Formal Name: 4Z,7Z,10Z,13Z,16Z,19Z-docosahexaenoic acid
Synonyms: Cervonic Acid, DHA,
C22:6 *n*-3; 4,7,10,13,16,19-Docosahexaenoic acid,
C22:6(4Z,7Z,10Z,13Z,16Z,19Z)
MF: $C_{22}H_{32}O_2$
FW: 328.5
Purity: ≥98%
Supplied as: A solution in ethanol
Storage: -20°C
Stability: ≥1 year



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

Laboratory Procedures

Docosahexaenoic 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 docosahexaenoic acid in these solvents is approximately 100 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 docosahexaenoic acid is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of docosahexaenoic acid in PBS (pH 7.2) and 0.15 M Tris-HCl (pH 8.5) is approximately 0.1 and 1 mg/ml, respectively. We do not recommend storing the aqueous solution for more than one day.

Description

Docosahexaenoic acid (DHA) is a long-chain ω-3 polyunsaturated fatty acid (PUFA) found in fish and algal oils.[1] It comprises approximately 40% of total brain PUFAs and is abundant in grey matter and retinal membranes.[2] DHA typically represents 0.52-7.5% of human total plasma fatty acids. It is produced from α-linolenic acid (ALA; Item Nos. 90210 | 21910) *via* a series of desaturase- and elongase-catalyzed reactions, resulting in a docosapentaenoic acid (DPA; Item No. 90165) intermediate, which is elongated, desaturated, and β-oxidized to produce DHA.[3] DHA can be liberated from cellular membranes by phospholipase A_2 (PLA_2) and converted to numerous oxylipins, including specialized pro-resolving mediators (SPMs), which are produced by lipoxygenases and include D-series protectins and resolvins, as well as maresins, that regulate host defense and the resolution of inflammation.[4] DHA has roles in several physiological and pathological processes, including neural development, cardiovascular diseases, obesity, and inflammation.[3,5]

References

1. Kuratko, C.N. and Salem, N., Jr. *Prostaglandins Leukot. Essent. Fatty Acids* **81(2-3)**, 111-118 (2009).
2. Lacombe, R.J.S., Chouinard-Watkins, R., and Bazinet, R.P. *Mol. Aspects Med.* **64**, 109-134 (2018).
3. Calder, P.C. *Ann. Nutr. Metab.* **69(Suppl 1)**, 7-21 (2016).
4. Basil, B.C. and Levy, B.D. *Nat. Rev. Immunol.* **16(1)**, 51-67 (2016).
5. Arnoldussen, I.A.C. and Kiliaan, A.J. *Mar. Drugs* **12(12)**, 6190-6212 (2014).

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