

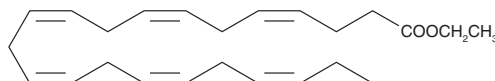
# Product Information



## Docosahexaenoic Acid ethyl ester

Catalog No. 9090310

**CAS Registry No.:** 1020718-25-5  
**Formal Name:** 2,4,6,8,10,12-docosahexaenoic acid, ethyl ester  
**Synonyms:** Cervonic Acid ethyl ester, DHA-EE, DHA ethyl ester  
**MF:** C<sub>24</sub>H<sub>36</sub>O<sub>2</sub>  
**FW:** 356.5  
**Purity:** ≥98%  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in ethanol



### Laboratory Procedures

For long term storage, we suggest that docosahexaenoic acid ethyl ester (DHA-EE) be stored as supplied at -20°C. It should be stable for at least one year.

DHA-EE 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 DHA-EE 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 DHA-EE is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of DHA-EE in PBS, pH 7.2, is approximately 0.15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Fish oils in the diet have anti-inflammatory and cardiovascular benefits due to an abundance of ω-3 polyunsaturated fatty acids (PUFAs), including DHA.<sup>1</sup> DHA is the most abundant ω-3 PUFA in neural tissues, especially in the retina and brain. DHA-EE is the stabilized ethyl ester form of the ω-3 22:6 fatty acid. Dietary intake of DHA-EE enhances maze-learning ability in old mice.<sup>2</sup> In rats, dietary DHA-EE increases plasma and erythrocyte membrane DHA levels without altering the content of the ω-6 arachidonic acid.<sup>3</sup> Dietary DHA-EE increases fatty acid oxidation enzymes in rats<sup>4</sup> and, in humans with peroxisomal disorders, improves vision, liver function, muscle tone and social contact.<sup>5</sup> The ω-3 fatty acid eicosapentaenoic acid (EPA) competitively inhibits the metabolism of arachidonic acid by cyclooxygenase enzymes,<sup>6</sup> suggesting that DHA-EE may also directly modulate the actions of enzymes involved in fatty acid metabolism.

### References

1. von Schack, C. A review of ω-3 ethyl esters for cardiovascular prevention and treatment of increased blood triglyceride levels. *Vascular Health and Risk Management* **2**(3), 251-262 (2006).
2. Lim, S.-Y. and Suzuki, H. Intakes of dietary docosahexaenoic acid ethyl ester and egg phosphatidylcholine improve maze-learning ability in young and old mice. *J. Nutr.* **130**, 1629-1632 (2000).
3. Valenzuela, A., Valenzuela, V., Sanhueza, J., *et al.* Effects of supplementation with docosahexaenoic acid ethyl ester and *sn*-2 docosahexaenyl monoacylglyceride on plasma and erythrocyte fatty acids in rats. *Ann. Nutr. Metab.* **49**, 49-53 (2005).
4. Hong, D.D., Takahashi, Y., Kushiro, M., *et al.* Divergent effects of eicosapentaenoic and docosahexaenoic acid ethyl esters, and fish oil on hepatic fatty acid oxidation in the rat. *Biochim. Biophys. Acta* **1635**, 29-36 (2003).
5. Martinez, M., Vázquez, E., García-Silva, M.T., *et al.* Therapeutic effects of docosahexaenoic acid ethyl ester in patients with generalized peroxisomal disorders. *Am. J. Clin. Nutr.* **71**, 376S-385S (2000).
6. Takano, K., Tabata, Y., Kitao, Y., *et al.* Methoxyflavones protect cells against endoplasmic reticulum stress and neurotoxin. *Am. J. Physiol. Cell Physiol.* **292**, C353-C361 (2007).

### Related Products

Docosahexaenoic Acid - Cat. No. 90310 • Docosahexaenoic Acid-d<sub>3</sub> - Cat. No. 10005057 • Docosahexaenoic Acid Quant-PAK - Cat. No. 10006829 • Docosahexaenoic Acid methyl ester - Cat. No. 10006865

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

### 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.

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