



# SZABO SCANDIC

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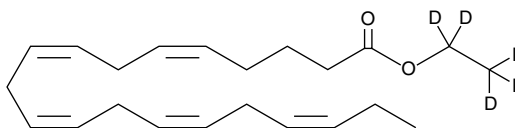
# Product Information



## Eicosapentaenoic Acid ethyl ester-d<sub>5</sub>

Item No. 9001244

**Formal Name:** 5Z,8Z,11Z,14Z,17Z-eicosapentaenoic acid, ethyl ester-d<sub>5</sub>  
**Synonym:** EPA ethyl ester-d<sub>5</sub>  
**MF:** C<sub>22</sub>H<sub>29</sub>D<sub>5</sub>O<sub>2</sub>  
**FW:** 335.5  
**Chemical Purity:** ≥98% EPA ethyl ester  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>5</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in ethanol



### Laboratory Procedures

Eicosapentaenoic acid ethyl ester-d<sub>5</sub> (EPA ethyl ester-d<sub>5</sub>) contains five deuterium atoms. It is intended for use as an internal standard for the quantification of EPA ethyl ester (Item No. 10008884) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that EPA ethyl ester-d<sub>5</sub> be stored as supplied at -20°C. It should be stable for at least one year.

EPA ethyl ester-d<sub>5</sub> 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 ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of EPA ethyl ester-d<sub>5</sub> in these solvents is approximately 100 mg/ml.

EPA ethyl ester-d<sub>5</sub> is used as an internal standard for the quantification of EPA ethyl ester by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Fish oils in the diet have anti-inflammatory and cardiovascular benefits due to an abundance of ω-3 polyunsaturated fatty acids (PUFAs), including EPA.<sup>1</sup> EPA ethyl ester is a stabilized ethyl ester form of this ω-3 C20:5 PUFA. EPA competitively inhibits the metabolism of (ω-6) arachidonic acid by cyclooxygenase enzymes, suggesting that EPA ethyl ester may also directly modulate the actions of enzymes involved in fatty acid metabolism.<sup>2</sup> In addition, dietary eicosapentaenoic acid ethyl ester in rats increases fatty acid β-oxidation enzyme levels, indicating that EPA ethyl ester may alter the expression of genes related to fatty acid metabolism.<sup>3,4</sup> Consistent with this concept, dietary supplementation with EPA ethyl ester in rats also down-regulates lipogenic genes, and decreases plasma cholesterol and triglyceride levels.<sup>5</sup> Also, in rats fed a high-fat diet, supplementation with EPA ethyl ester blocks induced insulin resistance and corrects changes in adiponectin levels and TNF-α expression.<sup>6</sup>

### References

1. von Schacky, C. *Vascular Health and Risk Management* **2**(3), 251-262 (2006).
2. Wada, M., DeLong, C.J., Hong, Y.H., *et al. J. Biol. Chem.* **282**(31), 22254-22266 (2007).
3. Hong, D.D., Takahashi, Y., Kushiro, M., *et al. Biochim. Biophys. Acta* **1635**, 29-36 (2003).
4. Arachchige, P.G., Takahashi, Y., and Ide, T. *Metabolism Clinical and Experimental* **55**, 381-390 (2006).
5. Pérez-Echarri, N., Pérez-Matute, P., Marcos-Gómez, B., *et al. Journal of Nutritional Biochemistry* (2008).
6. Pérez-Matute, P., Pérez-Echarri, N., Martínez, J.A., *et al. British Journal of Nutrition* **97**, 389-398 (2007).

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