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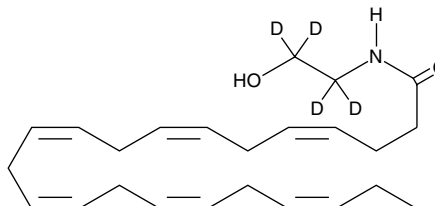
Product Information



Docosahexaenoyl Ethanolamide-d₄

Item No. 9001108

CAS Registry No.: 946524-43-2
Formal Name: N-(2-hydroxyethyl-1,1',2,2'-d₄)-4Z,7Z,10Z,13Z,16Z,19Z-docosahexaenamide
Synonyms: DEA-d₄, DHEA-d₄
MF: C₂₄H₃₃D₄NO₂
FW: 375.6
Chemical Purity: ≥98% Docosahexaenoyl Ethanolamide
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
Stability: ≥1 year at -20°C
Supplied as: A solution in ethanol



Laboratory Procedures

Docosahexaenoyl ethanolamide-d₄ (DHEA-d₄) contains four deuterium atoms at the 1, 1', 2, and 2' positions. It is intended for use as an internal standard for the quantification of DHEA by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that DHEA-d₄ be stored as supplied at -20°C. It should be stable for at least one year.

DHEA-d₄ 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 (DMF), purged with an inert gas can be used. The solubility of DHEA-d₄ in ethanol is approximately 5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

DHEA-d₄ is used as an internal standard for the quantification of DHEA 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).

Docosahexaenoic Acid (DHA) is an essential fatty acid and the most abundant ω-3 fatty acid in neural tissues, especially in the retina and brain. DHEA is the ethanolamine amide of DHA that has been detected in both brain and retina at concentrations similar to those for arachidonoyl ethanolamide (AEA).^{1,2} A 9.5 fold increase of DHEA was observed in brain lipid extracts from piglets fed a diet supplemented with DHA compared to a control diet without DHA.³ DHEA binds to the rat brain CB₁ receptor with a K_i value of 324 nM, which is approximately 10-fold higher than the K_i value for AEA.⁴ DHEA inhibits shaker-related voltage-gated potassium channels in brain slightly better than AEA, with an IC₅₀ value of 1.5 μM.⁵

References

1. Sugiura, T., Kondo, S., Sukagawa, A., *et al. Eur. J. Biochem.* **240**, 53-62 (1996).
2. Bisogno, T., Delton-Vandenbroucke, I., Milone, A., *et al. Arch. Biochem. Biophys.* **370(2)**, 300-307 (1999).
3. Berger, A., Crozier, G., Bisogno, T., *et al. Proc. Natl. Acad. Sci. USA* **98(11)**, 6402-6406 (2001).
4. Sheskin, T., Hanus, L., Slager, J., *et al. J. Med. Chem.* **40**, 659-667 (1997).
5. Poling, J.S., Rogawski, M.A., Salem, N., Jr., *et al. Neuropharmacology* **35(7)**, 983-991 (1996).

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

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