

# Product Information



## Arachidonoyl Ethanolamide-d<sub>4</sub>

Item No. 10011178

**CAS Registry No.:** 946524-40-9  
**Formal Name:** N-(2-hydroxyethyl-1,1,2,2-d<sub>4</sub>)-5Z,8Z,11Z,14Z-eicosatetraenamide

**Synonyms:** AEA-d<sub>4</sub>, Anandamide-d<sub>4</sub>

**MF:** C<sub>22</sub>H<sub>33</sub>D<sub>4</sub>NO<sub>2</sub>

**FW:** 351.6

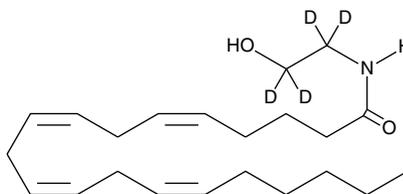
**Chemical Purity:** ≥98%

### Deuterium

**Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>

**Stability:** ≥1 year at -20°C

**Supplied as:** A solution in ethanol



### Laboratory Procedures

Arachidonoyl ethanolamide-d<sub>4</sub> (AEA-d<sub>4</sub>) contains four deuterium atoms at the hydroxyethyl 1, 1', 2, and 2' positions. It is intended for use as an internal standard for the quantification of AEA by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that AEA-d<sub>4</sub> be stored as supplied at -20°C. It will be stable for at least one year.

AEA-d<sub>4</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 DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of AEA-d<sub>4</sub> in these solvents is approximately 2 mg/ml.

AEA-d<sub>4</sub> is used as an internal standard for the quantification of AEA 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).

AEA is the ethanolamine amide of arachidonic acid, first isolated from porcine brain.<sup>1</sup> It is an endogenous cannabinoid neurotransmitter that binds to both central cannabinoid (CB<sub>1</sub>) and peripheral cannabinoid (CB<sub>2</sub>) receptors and mimics the pharmacologic effects of Δ<sup>9</sup>-THC.<sup>2</sup> AEA inhibits the specific binding of [<sup>3</sup>H]-HU-243 to synaptosomal membranes with a K<sub>i</sub> value of 52 nM, compared to 46 nM for Δ<sup>9</sup>-THC.<sup>1</sup>

### References

1. Devane, W.A., Hanus, L., Breuer, A., *et al.* Isolation and structure of a brain constituent that binds to the cannabinoid receptor. *Science* **258**, 1946-1949 (1992).
2. Felder, C.C., Briley, E.M., Axelrod, J., *et al.* Anandamide, an endogenous cannabimimetic eicosanoid, binds to the cloned human cannabinoid receptor and stimulates receptor-mediated signal transduction. *Proc. Natl. Acad. Sci. USA* **90**, 7656-7660 (1993).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/10011178](http://www.caymanchem.com/catalog/10011178)

**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 *via* email to your institution.

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