

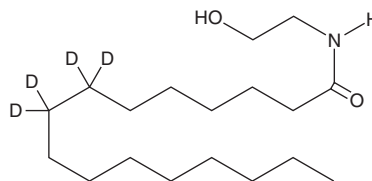
# PRODUCT INFORMATION



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

Item No. 10007824

**CAS Registry No.:** 1159908-45-8  
**Formal Name:** N-(2-hydroxyethyl)-hexadecanamide-7,7,8,8-d<sub>4</sub>  
**Synonyms:** Palmidrol-d<sub>4</sub>, Palmityl Ethanolamide-d<sub>4</sub>, PEA-d<sub>4</sub>  
**MF:** C<sub>18</sub>H<sub>33</sub>D<sub>4</sub>NO<sub>2</sub>  
**FW:** 303.5  
**Chemical Purity:** ≥98% (Palmitoyl ethanolamide)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solution in ethanol  
**Storage:** -20°C  
**Stability:** ≥2 years



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

### Laboratory Procedures

Palmitoyl ethanolamide-d<sub>4</sub> (PEA-d<sub>4</sub>) is intended for use as an internal standard for the quantification of PEA (Item No. 90350) by GC- or LC-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).

PEA-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 PEA-d<sub>4</sub> in these solvents is approximately 5 and 10 mg/ml, respectively.

### Description

PEA is an endogenous fatty N-acyl ethanolamine and a derivative of the endocannabinoid arachidonoyl ethanolamide (AEA; Item No. 90050).<sup>1,2</sup> It selectively activates peroxisome proliferator-activated receptor  $\alpha$  (PPAR $\alpha$ ; EC<sub>50</sub> = 3.1  $\mu$ M) over PPAR $\beta/\delta$  and PPAR $\gamma$  in HeLa cells expressing the human receptors.<sup>3</sup> PEA binds to RBL-2H3 basophil membranes (IC<sub>50</sub> = 1 nM), which endogenously express cannabinoid 2 (CB<sub>2</sub>), but not CB<sub>1</sub>, receptors, and inhibits antigen-induced serotonin release from RBL-2H3 cells (EC<sub>50</sub> = 0.27  $\mu$ M).<sup>2</sup> It prevents decreases in paw withdrawal latency in a radiant heat hypersensitivity test, an effect that can be reversed by the CB<sub>1</sub> receptor antagonist SR141716 (rimonabant; Item No. 70785), and transient receptor potential vanilloid 1 (TRPV1) antagonist capsaizepine (Item No. 10007518), in a mouse model of neuropathic pain induced by chronic constriction injury of the sciatic nerve.<sup>4</sup> PEA (10 mg/kg) decreases carrageenan-induced paw edema in wild-type, but not *Ppara*<sup>-/-</sup>, mice.<sup>3</sup> It inhibits tonic convulsions induced by pentylenetetrazole (PTZ; Item No. 18682) in rats when administered at a dose of 40 mg/kg.<sup>4</sup> Formulations containing palmitoyl ethanolamide have been used as dietary supplements.

### References

1. Bachur, N.R., Masek, K., Melmon, K.L., et al. *J. Biol. Chem.* **240**, 1019-1024 (1965).
2. Facci, L., Dal Toso, R., Romanello, S., et al. *Proc. Natl. Acad. Sci. USA* **92**(8), 3376-3380 (1995).
3. Lo Verme, J., Fu, J., Astarita, G., et al. *Mol. Pharmacol.* **67**(1), 15-19 (2005).
4. Costa, B., Comelli, F., Bettoni, I., et al. *Pain* **139**(3), 541-550 (2008).
5. Sheerin, A.H., Zhang, X., Saucier, D.M., et al. *Epilepsia* **45**(10), 1184-1188 (2004).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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