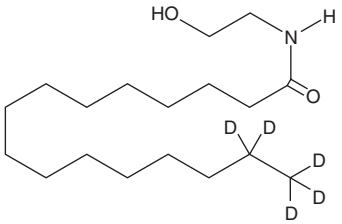
PRODUCT INFORMATION

Palmitoyl Ethanolamide-d_5

Item No. 9000573

Formal Name: N-(2-hydroxyethyl)-hexadecanamide-15,15,16,16,16-d_5
Synonyms: Palmidrol-d_5, PEA-15,15,16,16,16-d_5
MF: $C_{18}H_{32}D_5NO_2$
FW: 304.5
Chemical Purity: ≥95% (Palmitoyl Ethanolamide)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_5); ≤1% d_0
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_5 (PEA-d_5) 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_5 is supplied as a solution in ethanol. To change the solvent, simply evaporate the PEA-d_5 under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol and dimethyl formamide purged with an inert gas can be used. The solubility of palmitoyl PEA-d_5 in these solvents is approximately 5 and 2 mg/ml, respectively.

Description

PEA is an endogenous fatty N-acyl ethanolamine and a derivative of the endocannabinoid arachidonoyl ethanolamide (AEA; Item No. 90050).[1,2] It selectively activates peroxisome proliferator-activated receptor α (PPARα; EC_{50} = 3.1 μM) over PPARβ/δ and PPARγ in HeLa cells expressing the human receptors.[3] PEA binds to RBL-2H3 basophil membranes (IC_{50} = 1 nM), which endogenously express cannabinoid 2 (CB_2), but not CB_1, receptors, and inhibits antigen-induced serotonin release from RBL-2H3 cells (EC_{50} = 0.27 μM).[2] It prevents decreases in paw withdrawal latency in a radiant heat hypersensitivity test, an effect that can be reversed by the CB_1 receptor antagonist SR141716 (rimonabant; Item No. 9000484), PPARγ antagonist GW 9662 (Item No. 70785), and transient receptor potential vanilloid 1 (TRPV1) antagonist capsazepine (Item No. 10007518), in a mouse model of neuropathic pain induced by chronic constriction injury of the sciatic nerve.[4] PEA (10 mg/kg) decreases carrageenan-induced paw edema in wild-type, but not *Ppara*$^{-/-}$, mice.[3] It inhibits tonic convulsions induced by pentylenetetrazole (PTZ; Item No. 18682) in rats when administered at a dose of 40 mg/kg.[5] 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,** 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).

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