

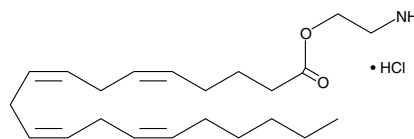
Product Information



O-Arachidonoyl Ethanolamine (hydrochloride)

Item No. 91050

CAS Registry No.: 443129-35-9
Formal Name: O-(2-aminoethyl)-5Z,8Z,11Z,14Z-eicosatetraenoic acid, ester, monohydrochloride
Synonyms: Arachidonic Acid-(2-aminoethyl)-ester, O-AEA, Virodhamine
MF: C₂₂H₃₇NO₂ • HCl
FW: 384
Purity: ≥98%
Stability: ≥6 months at -80°C
Supplied as: A neat oil



Laboratory Procedures

For long term storage, we suggest that O-arachidonoyl ethanolamine hydrochloride (O-AEA HCl) be stored as supplied at -80°C. It should be stable for at least six months.

O-AEA HCl is supplied as a neat oil. A stock solution may be made by dissolving the O-AEA HCl in the solvent of choice. O-AEA HCl is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of O-AEA HCl in these solvents is approximately 20 mg/ml. O-AEA HCl is not stable in solution, dilute samples and use immediately.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Organic solvent-free aqueous solutions of O-AEA HCl can be prepared by directly dissolving the neat oil in aqueous buffers. The solubility of O-AEA HCl in PBS (pH 7.2) is approximately 100 µg/ml. We do not recommend storing the aqueous solution for more than one day.

Arachidonoyl ethanolamide (AEA) was the first endogenous cannabinoid to be isolated and characterized as an agonist acting on the same receptors (CB₁ and CB₂) as tetrahydrocannabinols (THC).^{1,2} Since that time, a number of related endocannabinoids have been isolated, most notably 2-arachidonoyl glycerol (2-AG).³ O-AEA is a recently isolated constituent of human and rat brain wherein the ethanolamine moiety is attached “backwards”, as an ester instead of an amide, as in AEA.^{1,2,4} O-AEA has mixed agonist/antagonist activity at the CB₁ receptor and does not appear to be the native endogenous cannabinoid agonist at this receptor. This is in keeping with other observations that 2-AG is the primary endogenous CB₁ receptor ligand.⁵

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).
3. Sugiura, T., Kodaka, T., Kondo, S., *et al.* Is the cannabinoid CB₁ receptor a 2-arachidonoylglycerol receptor? Structural requirements for triggering a Ca²⁺ transient in NG108-15 cells. *J. Biochem.* **122**, 890-895 (1997).
4. Porter, A.C., Sauer, J.-M., Knierman, M.D., *et al.* Characterization of a novel endocannabinoid, virodhamine, with antagonist activity at the CB₁ receptor. *J. Phar. Exp. Ther.* **301**(3), 1020-1024 (2002).
5. Sugiura, T., Kodaka, T., Nakane, S., *et al.* Evidence that the cannabinoid CB₁ receptor is a 2-arachidonoylglycerol receptor. Structure-activity relationship of 2-arachidonoylglycerol, ether-linked analogues, and related compounds. *J. Biol. Chem.* **274**, 2794-2801 (1999).

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