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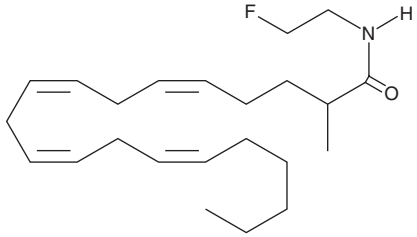
PRODUCT INFORMATION

(±)-2-Methyl Arachidonoyl-2'-Fluoroethylamide

Item No. 90055

CAS Registry No.: 166100-39-6
Formal Name: (±)-N-(2-fluoroethyl)-2-methyl-5Z,8Z,11Z,14Z-eicosatetraenamide
Synonyms: 2-Methyl-2'-fluoro AEA, 2-Methyl-2'-Anandamide, O-689
MF: $C_{23}H_{38}NOF$
FW: 363.6
Purity: ≥95%
Supplied as: A solution in ethanol
Storage: -20°C
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



Laboratory Procedures

(±)-2-Methyl arachidonoyl-2'-fluoroethylamide (2-methyl-2'-fluoro AEA) 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 2-methyl-2'-fluoro AEA in these solvents is approximately 10 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of 2-methyl-2'-fluoro AEA is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of 2-methyl-2'-fluoro AEA in PBS (pH 7.2) is approximately 100 µg/ml. 2-methyl-2'-fluoro AEA is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanolic solution of 2-methyl-2'-fluoro AEA should be diluted with the aqueous buffer of choice. 2-Methyl-2'-fluoro AEA has a solubility of approximately 8.5 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

2-Methyl-2'-fluoro AEA is an analog of anandamide (AEA) in which the alcohol of the ethanolamide group has been removed and replaced with a fluorine atom. This substitution confers considerably increased binding affinity for the CB_1 receptor (K_i = 5.7 nM in rat brain). It also confers additional selectivity, in that binding to CB_2 receptor is decreased relative to AEA.[1] However, the *in vivo* activity of 2-fluoro AEA is enhanced much less than the binding affinity, because the analog remains a good substrate for fatty acid amide hydrolase (FAAH) and is rapidly hydrolyzed by this enzyme. 2-Methyl-2'-fluoro AEA is further modified by the addition of an α−methyl group at the C-2 position of arachidonic acid. This substitution confers enhanced metabolic stability. 2-Methyl-2'-fluoro AEA can fully substitute for Δ^9-THC in animal self-administration tests, whereas AEA itself and 2-fluoro AEA cannot.[2]

References

1. Lin, S., Khanolkar, A.D., Fan, P., *et al. J. Med. Chem.* **41**, 5353-5361 (1998).
2. Ryan, W.J., Banner, K., Crocker, P.J., *et al. Bioorg. med. Chem. Lett.* **7**, 2669-2672 (1997).

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