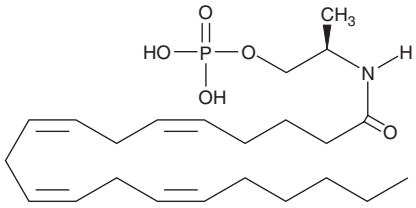
PRODUCT INFORMATION

R-1 Methanandamide Phosphate

Item No. 10004281

CAS Registry No.:	649569-33-5
Formal Name:	N-(2-phosphate-1R-methylethyl)-5Z,8Z,11Z,14Z-eicosatetraenamide
Synonyms:	R-1MAP, (R)-(+)-Arachidonyl-1'-Hydroxy-2'-Propylamide Phosphate
MF:	$C_{23}H_{40}NO_5P$
FW:	441.5
Purity:	≥98%
Supplied as:	A solution in ethanol
Storage:	-20°C
Stability:	≥1 year



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

Laboratory Procedures

R-1 Methanandamide phosphate 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 R-1 methanandamide phosphate in these solvents is approximately 15 and 20 mg/ml respectively.

R-1 Methanandamide phosphate is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanolic solution of R-1 methanandamide phosphate should be diluted with the aqueous buffer of choice. The solubility of R-1 methanandamide phosphate in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Arachidonoyl ethanolamide (AEA) was the first endogenous cannabinoid (CB) to be isolated and characterized as an agonist acting on the same receptors (CB_1 and CB_2) as Δ^9-THC.[1,2] Since that time, a number of related endocannabinoids have been isolated, most notably 2-arachidonoyl glycerol (2-AG).[2] The phosphate ester of R-1 methanandamide, R-1MAP, has been tested as a water soluble prodrug analog of AEA.[3] The activity of R-1MAP was essentially equivalent to that of AEA in the growth inhibition of C_6 glioma cells. However, when tested for inhibition of AEA binding to isolated rat brain CB_1 receptors, arachidonoyl ethanolamide phosphate (AEA-P) is about 5-fold less potent as an agonist with a K_i of about 200 nM.[4] The phosphate esters of AEA and its analogs are also structural variants of lysophosphatidic acid (LPA). However, the effects of R-1MAP on the various LPA receptors have not been tested.

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(5090), 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(16), 7656-7660 (1993).
3. Fowler, C.J., Jonsson, K.O., Andersson, A., et al. Inhibition of C6 glioma cell proliferation by anandamide, 1-arachidonoylglycerol, and by a water soluble phosphate ester of anandamide: Variability in response and involement of arachidonic acid. Biochem. Pharmacol. 66(5), 757-767 (2003).
4. Sheskin, T., Hanus, L., Slager, J., et al. Structural requirements for binding of anandamide-type compounds to the brain cannabinoid receptor. J. Med. Chem. 40(5), 659-667 (1997).

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