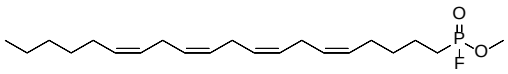
Product data sheet

MedKoo Cat#: 526468 Name: MAFP CAS: 188404-10-6 Chemical Formula: $C_{21}H_{36}FO_2P$ Exact Mass: 370.2437 Molecular Weight: 370.4892	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
MAFP is an irreversible inhibitor of Ca(2+)-independent phospholipase A2 (iPLA2).

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	3.0	8.10
DMSO	3.0	8.10
Ethanol	3.5	9.45
Ethanol:PBS (pH 7.2) (1:1)	0.5	1.35

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.70 mL	13.50 mL	26.99 mL
5 mM	0.54 mL	2.70 mL	5.40 mL
10 mM	0.27 mL	1.35 mL	2.70 mL
50 mM	0.05 mL	0.27 mL	0.54 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. De Petrocellis L, Melck D, Ueda N, Maurelli S, Kurahashi Y, Yamamoto S, Marino G, Di Marzo V. Novel inhibitors of brain, neuronal, and basophilic anandamide amidohydrolase. Biochem Biophys Res Commun. 1997 Feb 3;231(1):82-8. doi: 10.1006/bbrc.1997.6000. PMID: 9070224.
2. Lio YC, Reynolds LJ, Balsinde J, Dennis EA. Irreversible inhibition of Ca(2+)-independent phospholipase A2 by methyl arachidonyl fluorophosphonate. Biochim Biophys Acta. 1996 Jul 12;1302(1):55-60. doi: 10.1016/0005-2760(96)00002-1. PMID: 8695655.

In vivo study

1. Fernando SR, Pertwee RG. Evidence that methyl arachidonyl fluorophosphonate is an irreversible cannabinoid receptor antagonist. Br J Pharmacol. 1997 Aug;121(8):1716-20. doi: 10.1038/sj.bjp.0701303. PMID: 9283708; PMCID: PMC1564861.
2. Deutsch DG, Omeir R, Arreaza G, Salehani D, Prestwich GD, Huang Z, Howlett A. Methyl arachidonyl fluorophosphonate: a potent irreversible inhibitor of anandamide amidase. Biochem Pharmacol. 1997 Feb 7;53(3):255-60. doi: 10.1016/s0006-2952(96)00830-1. PMID: 9065728.

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7. Bioactivity

Biological target:

MAFP (Methyl Arachidonyl Fluorophosphonate) is an selective, active-site directed and irreversible inhibitor of cPLA2 and iPLA2.

In vitro activity

Conversely, the irreversible inhibitor of cytosolic phospholipase As, methyl-arachidonoyl-fluoro-phosphonate (MAFP), covalently inhibited the amidohydrolase. MAFP was active at concentrations 10(3) times lower than those reported for phospholipase A2 inhibition, and is the most potent anandamide amidohydrolase inhibitor so far described (IC_{50} = 1-3 nM).

Reference: Biochem Biophys Res Commun. 1997 Feb 3;231(1):82-8. https://pubmed.ncbi.nlm.nih.gov/9070224/

In vivo activity

In the current study, methyl arachidonyl fluorophosphonate (MAFP), an arachidonyl binding site directed phosphonylation reagent, was tested as an inhibitor of anandamide amidase and as a ligand for the CB1 cannabinoid receptor. MAFP was 800 times more potent than Arach-CF3 and phenylmethylsulfonyl fluoride (PMSF) as an amidase inhibitor in rat brain homogenates.

Reference: Biochem Pharmacol. 1997 Feb 7;53(3):255-60. https://pubmed.ncbi.nlm.nih.gov/9065728/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.