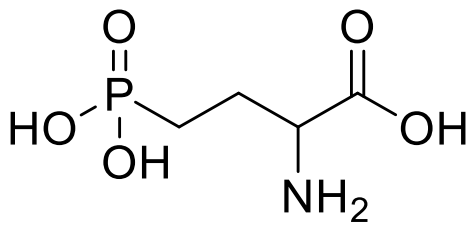
Product data sheet

MedKoo Cat#: 596856 Name: L-AP4 CAS: 23052-81-5 Chemical Formula: $C_4H_{10}NO_5P$ Exact Mass: 183.0297 Molecular Weight: 183.0998	
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:
L-AP4 is the phosphonic acid analog of L-glutamic acid. A selective group III metabotropic glutamate receptor agonist. Also a potent, pathway-specific synaptic depressant.

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
PBS (pH 7.2)	2.0	10.92
Water	25.46	139.05

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.46 mL	27.31 mL	54.62 mL
5 mM	1.09 mL	5.46 mL	10.92 mL
10 mM	0.55 mL	2.73 mL	5.46 mL
50 mM	0.11 mL	0.55 mL	1.09 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. Tones MA, Bendali N, Flor PJ, Knöpfel T, Kuhn R. The agonist selectivity of a class III metabotropic glutamate receptor, human mGluR4a, is determined by the N-terminal extracellular domain. Neuroreport. 1995 Dec 29;7(1):117-20. PMID: 8742431.

In vivo study

1. Takemoto Y. L-Cysteine and L-AP4 microinjections in the rat caudal ventrolateral medulla decrease arterial blood pressure. Auton Neurosci. 2014 Dec;186:45-53. doi: 10.1016/j.autneu.2014.09.018. Epub 2014 Oct 2. PMID: 25450419.

2. Chen SR, Pan HL. Distinct roles of group III metabotropic glutamate receptors in control of nociception and dorsal horn neurons in normal and nerve-injured Rats. J Pharmacol Exp Ther. 2005 Jan;312(1):120-6. doi: 10.1124/jpet.104.073817. Epub 2004 Sep 16. PMID: 15375175.

7. Bioactivity
Biological target:

L-AP4 (L-APB) is a potent and specific agonist for the group III mGluRs, with EC_{50}s of 0.13, 0.29, 1.0, 249 μM for $mGlu_4$, $mGlu_8$, $mGlu_6$ and $mGlu_7$ receptors, respectively.

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In vitro activity

Application of 100 microM L-2-amino-4-phosphonobutyrate (L-AP4), a class III mGluR-specific agonist, induced a rise in [Ca2+]i in hmGlu(R4)1-519/1b but not in hmGluR1b expressing cells.

Reference: Neuroreport. 1995 Dec 29;7(1):117-20. https://pubmed.ncbi.nlm.nih.gov/8742431/

In vivo activity

An intrathecal (5-30 microg) L-AP4 dose-dependently attenuated allodynia in nerve-injured rats but had no antinociceptive effect in normal rats. Topical spinal application of 5 to 50 microM L-AP4 also significantly inhibited the evoked responses of ascending dorsal horn neurons in nerve-ligated but not normal rats.

Reference: J Pharmacol Exp Ther. 2005 Jan;312(1):120-6. https://pubmed.ncbi.nlm.nih.gov/15375175/

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.