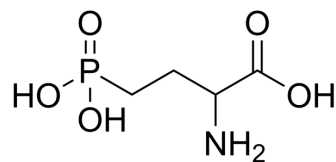


## DL-AP4

Cat. No.:	HY-100743		
CAS No.:	6323-99-5		
Molecular Formula:	C <sub>4</sub> H <sub>10</sub> NO <sub>5</sub> P		
Molecular Weight:	183.1		
Target:	mGluR		
Pathway:	GPCR/G Protein; Neuronal Signaling		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



## SOLVENT & SOLUBILITY

### In Vitro

H<sub>2</sub>O : 5 mg/mL (27.31 mM; ultrasonic and warming and heat to 60°C)

Solvent	Mass	Concentration		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	5.4615 mL	27.3075 mL	54.6150 mL
	5 mM	1.0923 mL	5.4615 mL	10.9230 mL
	10 mM	0.5461 mL	2.7307 mL	5.4615 mL

Please refer to the solubility information to select the appropriate solvent.

## BIOLOGICAL ACTIVITY

### Description

DL-AP4 (2-Amino-4-phosphonobutyric acid) is a glutamate antagonist. DL-AP4 behaves as a competitive inhibitor of glutamate binding with an apparent  $K_D$  of 66  $\mu$ M. DL-AP4 can be used for the research of central nervous system and visual system<sup>[1][2][3]</sup>.

### IC<sub>50</sub> & Target

Glutamate<sup>[1]</sup>

### In Vitro

DL-AP4 (500  $\mu$ M) reduces the tonic inward current by closing ion channels at holding potentials of -33 mV in isolated rod bipolar cells<sup>[1]</sup>.  
 DL-AP4 (0.1 M; 1h) antagonizes the excitatory action of glutamate applied iontophoretically to receptors present in the locust muscle membrane<sup>[2]</sup>.  
 DL-AP4 (compound 2) antagonizes excitatory synapses in the lateral perforant path of the rat hippocampal slice with an apparent  $K_D$  of 2.5  $\mu$ M<sup>[3]</sup>.  
 DL-AP4 (50  $\mu$ M; 0-2 seconds) blocks the light response of a series of 10 ms 405-nm flashes, at the following strengths: 3, 10, 30, 100, 300, 990, 3000, 9900 photons  $\mu$ m<sup>-2</sup><sup>[4]</sup>.  
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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## REFERENCES

- [1]. Cull-Candy SG, et al. 2-Amino-4-phosphonobutyric acid as a glutamate antagonist on locust muscle. *Nature*. 1976 Jul 29;262(5567):408-9.
- [2]. Crooks SL, et al. Cyclic analogues of 2-amino-4-phosphonobutanoic acid (APB) and their inhibition of hippocampal excitatory transmission and displacement of [3H]APB binding. *J Med Chem*. 1986 Oct;29(10):1988-95.
- [3]. Yamashita M, et al. Responses of rod bipolar cells isolated from the rat retina to the glutamate agonist 2-amino-4-phosphonobutyric acid (APB). *J Neurosci*. 1991 Aug;11(8):2372-82.
- [4]. Ellis EM, et al. Separate ON and OFF pathways in vertebrate vision first arose during the Cambrian. *Curr Biol*. 2020 Jun 8;30(11):R633-R634.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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