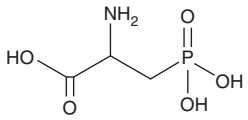
PRODUCT INFORMATION

DL-AP3

Item No. 13852

CAS Registry No.: 5652-28-8
Formal Name: 3-phosphono-alanine
Synonyms: DL-2-Amino-3-Phosphonopropionic Acid, NSC 30078
MF: $C_3H_8NO_5P$
FW: 169.1
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

DL-AP3 is supplied as a crystalline solid. Aqueous solutions of DL-AP3 can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of DL-AP3 in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Metabotropic glutamate receptors (mGluR1-8) are G protein-coupled receptors that function to modulate brain excitatory signaling *via* presynaptic, postsynaptic, and glial mechanisms.[1] DL-AP3 is a competitive mGluR1 antagonist that demonstrates a K_i value of 298 µM and an IC_{50} value of 1mM for rat mGluR1α when challenged with glutamate.[2] DL-AP3 can antagonize excitatory amino acid-induced phosphoinositide hydrolysis, induce Ca^{2+} mobilization in rat hippocampal slices, and inhibit phosphoserine phosphatase in rat brain cortex.[1,3] At concentrations from 10-300 µM DL-AP3 has been used to characterize the role of mGluR in long-term potentiation in the hippocampus in a model of learning and memory, the release of glutamate in Parkinson's disease, and the increased activity of mGluR implicated in fragile X syndrome.[4-6]

References

1. Schoepp, D.D. Unveiling the functions of presynaptic metabotropic glutamate receptors in the central nervous system. *J. Pharmacol. Exp. Ther.* **299(1)**, 12-20 (2001).
2. Schoepp, D.D., Jane, D.E., and Monn, J.A. Pharmacological agents acting at subtypes of metabotropic glutamate receptors. *Neuropharmacology* **38(10)**, 1431-1476 (1999).
3. Hawkinson, J.E., Acosta-Burruel, M., and Wood, P.L. The metabotropic glutamate receptor antagonist L-2-amino-3-phosphonopropionic acid inhibits phosphoserine phosphatase. *Eur. J. Pharmacol.* **307**, 219-225 (1996).
4. Otani, S., Connor, J.A., and Levy, W.B. Long-term potentiation and evidence for novel synaptic association in CA1 stratum oriens of rat hippocampus. *Learn. Mem.* **2**, 101-106 (1995).
5. Hao, L., Ding, J.-H., and Hu, G. Group I mGluR ligands fail to affect 6-hydroxydopamine-induced death and glutamate release of PC12 cells. *Acta. Pharmacol. Sin.* **24(7)**, 641-645 (2003).
6. Xu, Z.-H., Yang, Q., Feng, B., *et al.* Group I mGluR antagonist rescues the deficit of D1- induced LTP in a mouse model of fragile X syndrome. *Mol. Neurodegener.* **7(1)**, (2012).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM