Datasheet

Product overview

Name: D-AP5  
Cat No: HB0225  
Short description: Selective, competitive NMDA receptor antagonist  
Biological description: Widely used, selective and competitive NMDA receptor antagonist which binds at the glutamate site. It is the more active form of DL-AP5.

Alternative names: 2-APV, D-APV  
Biological action: Antagonist  
Purity: >99%  
Customer comments: 

I made the discovery that the NMDA receptor is the trigger for the induction of LTP using D-AP5 synthesized by Jeff Watkins, the discoverer of the NMDA receptor... I now obtain my D-AP5 from Hello Bio. I love their products and ethos and that is why I accepted a position on their Scientific Advisory Board.  

Professor Graham Collingridge, winner of The Brain Prize, 2016

My lab used D-AP5 from Hello Bio and were very happy with it. It behaved exactly as expected!  
Professor Kei Cho, Chair of Neuroscience, University of Bristol, UK (Hello Bio Scientific Advisory Board Member)

My lab is very satisfied with your D-AP5 quality and price.  
Verified customer, European Brain Research Institute (EBRI)

I used to buy D-AP5 from another company, but Hello Bio is far more cost-effective and works great in our experiments.  
Verified customer, University of South Carolina

The D-AP5 works as expected, great price.  
Verified customer, UCSF

Images

Fig 1: D-AP5 inhibition of evoked NMDAR mediated EPSCs in mouse cortical neuron

The NMDA receptor antagonist D-AP5 is commonly used to inhibit NMDA mediated synaptic plasticity. It is often used at concentrations of 50 μM. D-AP5 from Hello Bio completely abolishes evoked NMDAR mediated currents at 50 μM and reduces NMDA currents at lower concentrations of 1 and 10 μM. For assay protocol, see #Protocol# in Application Notes below.
Properties

**Chemical name**  
D-(-)-2-Amino-5-phosphonopentanoic acid

**Molecular Weight**  
197.13

**Chemical structure**

```
\[
\text{HO}_2\text{C}-\text{NH}_2-\text{PO(OH)}_2
\]
```

**Molecular Formula**  
C_5H_{12}NO_5P

**CAS Number**  
79055-68-8

**PubChem identifier**  
135342

**SMILES**  
N[C@H](CCCP(=O)(O)O)C(=O)O

**Source**  
Synthetic

**InChI**  
InChI=1S/C5H12NO5P/c6-4(5(7)8)2-1-3-12(9,10)11/h4H,1-3,6H2,(H2,9,10,11)/t4-/m1/s1

**InChIKey**  
VOROEQBFPPIACJ-SCSAIBSYSA-N

**MDL number**  
MFCD00078839

**Appearance**  
White solid

Applications

Application notes

The NMDA receptor antagonist D-AP5 is commonly used to inhibit NMDA mediated synaptic plasticity. It is often used at concentrations of 50 μM. D-AP5 from Hello Bio completely abolishes evoked NMDAR mediated currents at 50 μM and reduces NMDA currents at lower concentrations of 1 and 10 μM (see Fig 1 above).

#Protocol 1: Evoked NMDA receptor currents

- Whole cell voltage clamp recordings were obtained from layer V neurons of the mouse prefrontal cortex brain slice.
- NMDA currents were evoked via a stimulating electrode placed in layers II/III and evoked by a single square (150 μs) pulse every 10 sec at a stimulus intensity that gave a reliable NMDA current.
- Neurons were held at +40 mV to relieve NMDA currents from their voltage-dependent Mg^{2+} block.
- NMDA currents were continually stimulated and recorded in response to continual bath applications of D-AP5 until NMDA currents were completely abolished.
- All NMDAR recordings were made in the presence of GABA_A-R and AMPAR antagonists.
Storing and Using Your Product

Storage instructions
Room temperature

Solubility overview
Soluble in water (100mM)

Important
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

References for D-AP5

**NMDA receptors, learning and memory: chronic intraventricular infusion of the NMDA receptor antagonist d-AP5 interacts directly with the neural mechanisms of spatial learning.**


PubMedID: 23311352

**Actions of D and L forms of 2-amino-5-phosphonovalerate and 2-amino-4-phosphonobutyrate in the cat spinal cord.**


PubMedID: 6145492

**Effects of pre or posttraining dorsal hippocampus D-AP5 injection on fear conditioning to tone, background, and foreground context.**


PubMedID: 18727044