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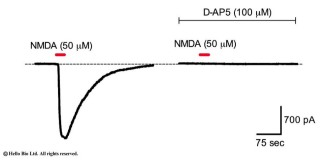
DATASHEET

NMDA

Product overview

Name	NMDA
Cat No	HB0454
Biological action	Agonist
Purity	>99%
Description	Prototypic NMDA receptor agonist

Images



Biological Data

Biological description
Prototypic NMDA receptor agonist which mimics the action of glutamate. Potent excitant.

Application notes
The prototypic NMDA receptor agonist NMDA is effective at a range of concentrations and typically used at 100 µM. NMDA from Hello Bio induces inward depolarising whole-cell currents in cortical neurons at 10 µM with prominent currents at 50 µM. The actions of NDMA were fully blocked by D-AP5 (NMDAR antagonist) at 100 µM (see Fig 1 above).

#Protocol 1: NMDA mediated whole-cell currents

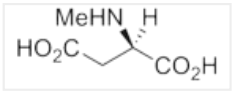
- Whole cell voltage clamp recordings were obtained from layer V neurons of the mouse prelimbic cortex brain slice.
- Neurons were held at -70 mV and continuously perfused with aCSF in the presence of AMPA and GABA receptor antagonists CNQX (10 µM) and Bicuculline (100 µM) respectively and Tetrodotoxin (1 µM) to reduce network activity.
- NMDA currents were evoked by applying NMDA directly to the recording chamber during continuous perfusion.
  • To test the selectivity of NMDA to NMDA receptors the experiment was repeated within the same neuron in the presence of the NMDA receptor antagonist D-AP5 (100 µM). Under these conditions NMDA failed to induce a depolarising current.

Solubility & Handling

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.

Chemical Data

Chemical name	*N*-Methyl-D-aspartic acid
Molecular Weight	147.13
Chemical structure	
Molecular Formula	$C_5H_9NO_4$
CAS Number	6384-92-5
PubChem identifier	22880
SMILES	CN[C@H](CC(=O)O)C(=O)O
InChi	InChI=1S/C5H9NO4/c1-6-3(5(9)10)2-4(7)8/h3,6H,2H2,1H3,(H,7,8)(H,9,10)/t3-/m1/s1
InChiKey	HOKKHZGPKSLGJE-GSVOUGTGSA-N
MDL number	MFCD00004226

References

N-methyl-D-aspartic acid (NMDA) in the nervous system of the amphioxus Branchiostoma lanceolatum.

D'Aniello S *et al* (2007) BMC Neurosci 8

PubMedID 18096065

Regulation of N-methyl-D-aspartic acid (NMDA) receptors by metabotropic glutamate receptor 7.

Gu Z *et al* (2012) J Biol Chem 287(13)

PubMedID 22287544

Occurrence of D-aspartic acid and N-methyl-D-aspartic acid in rat neuroendocrine tissues and their role in the modulation of luteinizing hormone and growth hormone release.

D'Aniello A *et al* (2000) FASEB J 14(5)

PubMedID 10744627