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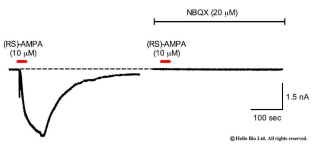
DATASHEET

(R,S)-AMPA

Product overview

Name	(R,S)-AMPA
Cat No	HB0030
Biological action	Agonist
Purity	>98%
Description	Prototypic AMPA receptor agonist

Images



Biological Data

Biological description	Prototypic AMPA receptor agonist (EC_{50} = 11 µM). (S)-AMPA is the active enantiomer form.
Application notes	The AMPA receptor agonist (R,S)-AMPA is typically used at concentrations of 1-100 µM. At 10 µM, (R,S)-AMPA from Hello Bio induces a large depolarising current. This depolarising current was occluded in the presence of the AMPA receptor antagonist NBQX (20µM). (See Fig 1 above).

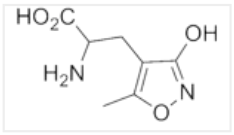
#Protocol 1: (R,S)-AMPA protocol

- Whole cell voltage clamp recordings of CA1 pyramidal neurons from the rat hippocampal brain slice.
- Neurons were held at -60 mV and continuously perfused with aCSF in the presence of the GABA receptor antagonist gabazine (20µM).
- AMPA currents were evoked via applying (R,S)-AMPA directly to the recording chamber during continuous perfusion.
- To test the selectivity of (R,S)-AMPA to AMPA receptors, the experiment was repeated within the same neuron in the presence of the AMPA receptor antagonist NBQX (20 µM)
- Under these conditions (R,S)-AMPA failed to induce a depolarising current.

Solubility & Handling

Storage instructions	Room temperature
Solubility overview	Soluble in water (10mM, gentle warming)
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	(*RS*)-α-Amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid
Molecular Weight	186.17
Chemical structure	
Molecular Formula	$C_7H_{10}N_2O_4$
CAS Number	77521-29-0
PubChem identifier	1221
SMILES	CC1=C(C(=O)NO1)CC(C(=O)O)N
Source	Synthetic
InChi	InChI=1S/C7H10N2O4/c1-3-4(6(10)9-13-3)2-5(8)7(11)12/h5H,2,8H2,1H3,(H,9,10)(H,11,12)
InChiKey	UUDAMDVQRQNNHZ-UHFFFAOYSA-N
MDL number	MFCD00213388
Appearance	White solid

References

The AMPA receptor binding site: focus on agonists and competitive antagonists.

Stensbøl TB *et al* (2002) Curr Pharm Des 8(10)
PubMedID 11945136

Willardiines differentiate agonist binding sites for kainate- versus AMPA-preferring glutamate receptors in DRG and hippocampal neurons.

Wong LA *et al* (1994) J Neurosci 14(6)
PubMedID 7515954

Activation and desensitization of AMPA/kainate receptors by novel derivatives of willardiine.

Patneau DK *et al* (1992) J Neurosci 12(2)
PubMedID 1371315