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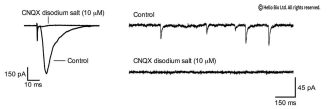
DATASHEET

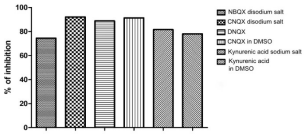
CNQX disodium salt

Product overview

Name	CNQX disodium salt
Cat No	HB0205
Biological action	Antagonist
Purity	>98%
Customer comments	*The CNQX is going fine !* **Verified customer, IBPS, Inserm, CNRS**
	It works exactly as it should! Dissolved in water, kept in aliquots in -20 freezer. **Verified customers, SickKids (University of Toronto)**
Description	Potent, competitive AMPA / kainate receptor antagonist. Disodium salt.

Images





Biological Data

Biological description

CNQX disodium salt is a water soluble, potent and competitive AMPA and kainate receptor antagonist. CNQX also antagonizes NMDA receptors at the glycine site.

CNQX increases $GABA_A$ receptor spontaneous postsynaptic currents (sPSCs) and also shows neuroprotective actions.

Application notes

CNQX also available.
The AMPA receptor antagonist CNQX disodium salt is commonly used at concentrations of 10 µM to inhibit the actions of glutamate acting on AMPARs.

CNQX disodium salt from Hello Bio reduces both spontaneous and evoked EPSCs in cortical neurons at concentrations of 1 µM with full AMPA receptor blockade at 10 µM (see Fig 1 above).

#Protocol 1: Evoked and spontaneous excitatory post synaptic currents (EPSCs)

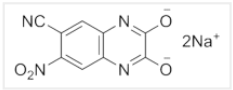
- Whole cell voltage clamp recordings were obtained from layer V neurons of the mouse prelimbic cortex brain slice.
- EPSCs were evoked via a stimulating electrode placed in layers II/III delivering a single square (150 µs) pulse every 10 sec at an intensity that gave a reliable EPSC.
- Neurons were held at -70 to -60 mV (the reversal potential of GABA currents).

EPSCs were continuously stimulated and recorded in response to 5 min applications of varying concentrations of CNQX disodium salt until complete receptor inhibition.
- Spontaneous EPSCs were recorded before and after addition of CNQX disodium salt by holding the neuron at -70 mV and recording for 10 sec.
- Recordings for EPSCs were made in the absence of $GABA_A$-R antagonists.

Solubility & Handling

Storage instructions	Room temperature (desiccate)
Solubility overview	Soluble in water (20mM)
Handling	Hydroscopic solid, contact with air may cause material to change colour and become sticky. Product performance should not be affected but we recommend storing the material in a sealed jar.
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	6-Cyano-7-nitroquinoxaline-2,3-dione disodium
Molecular Weight	276.12
Chemical structure	
Molecular Formula	$C_9H_2N_4O_4Na_2$
CAS Number	479347-85-8
PubChem identifier	2821
SMILES	C1=C(C(=CC2=C1N=C(C(=N2)[O-])[O-])[N+](=O)[O-])C#N.[Na+].[Na+]
Source	Synthetic
InChi	InChI=1S/C9H4N4O4.2Na/c10-3-4-1-5-6(2-7(4)13(16)17)12-9(15)8(14)11-5;;/h1-2H,(H,11,14)(H,12,15);;/q;2*+1/p-2
InChiKey	YCXDDPGRZKUGDG-UHFFFAOYSA-L
MDL number	MFCD09953908
Appearance	Brown or yellow solid

References

6,7-Dinitro-quinoxaline-2,3-dion and 6-nitro,7-cyano-quinoxaline-2,3-dion antagonise responses to NMDA in the rat spinal cord via an action at the strychnine-insensitive glycine receptor.

Birch PJ *et al* (1988) Eur J Pharmacol 156(1)
PubMedID 2905271

The calpain inhibitor MDL-28170 and the AMPA/KA receptor antagonist CNQX inhibit neurofilament degradation and enhance neuronal survival in kainic acid-treated hippocampal slice cultures.

Lopez-Picon FR *et al* (2006) Eur J Neurosci 23(10)
PubMedID 16817871

6-Cyano-7-nitroquinoxaline-2,3-dione (CNQX) increases GABAA receptor-mediated spontaneous postsynaptic currents in the dentate granule cells of rat hippocampal slices.

Hashimoto Y *et al* (2004) Neurosci Lett 358(1)
PubMedID 15016428

Pharmacological characterization of glutamatergic agonists and antagonists at recombinant human homomeric and heteromeric kainate receptors in vitro.

Alt et al (2004) Neuropharmacology 46(6)
PubMedID 15033339