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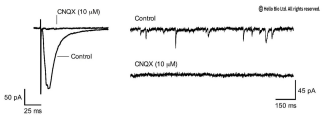
DATASHEET

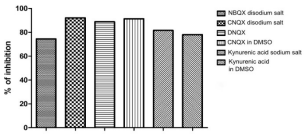
CNQX

Product overview

Name	CNQX
Cat No	HB0204
Biological action	Antagonist
Purity	>98%
Customer comments	*Absolute satisfaction not only with item received, but especially with communication. This product (CNQX) meets our expectation and description as declared on websites. Communication was immediate and fast. Item came second day after purchase has been done, firmly packed. Unrivaled prices, friendly approach!* **Verified customer, National institute of mental health Czech Republic** *Another quality compound! CNQX from Hello Bio works great in our experiments and at a price that is definitely nice! We continue to be impressed with the value we get from this company.* **Verified customer, University of South Carolina**
Description	Potent, competitive AMPA / kainate receptor antagonist

Images





Biological Data

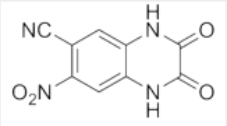
Biological description	Potent and competitive AMPA and kainate receptor antagonist. Also antagonises NMDA receptors at the glycine site. Increases $GABA_A$ receptor spontaneous postsynaptic currents (sPSCs). Shows neuroprotective actions. Water soluble, CNQX disodium salt also available.
Application notes	The AMPA receptor antagonist CNQX is commonly used at concentrations of 10 µM to inhibit the actions of glutamate acting on AMPARs. CNQX 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 until complete receptor inhibition.
- Spontaneous EPSCs were recorded before and after addition of CNQX 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
Solubility overview	Soluble in DMSO (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	6-Cyano-7-nitroquinoxaline-2,3-dione
Molecular Weight	232.16
Chemical structure	
Molecular Formula	$C_9H_4N_4O_4$
CAS Number	115066-14-3
PubChem identifier	3721046
SMILES	C1=C(C(=CC2=C1NC(=O)C(=O)N2)[N+](=O)[O-])C#N
Source	Synthetic
InChi	InChI=1S/C9H4N4O4/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)
InChiKey	RPXVIAFEQBNEAX-UHFFFAOYSA-N
MDL number	MFCD00069232
Appearance	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

Dop neuron glutamate cotransmission evokes a delayed excitation in lateral dorsal striatal cholinergic interneurons

Chuhma et al (2018) eLIFE 7:e39786