

# DATASHEET

## CNQX

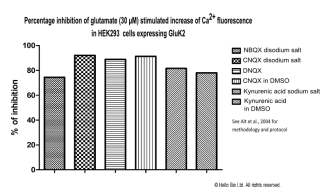
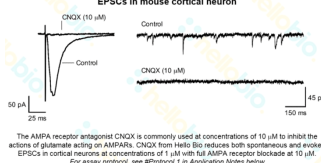
### Product overview

<b>Name</b>	CNQX
<b>Cat No</b>	HB0204
<b>Description</b>	Potent, competitive AMPA / kainate receptor antagonist
<b>Biological action</b>	Antagonist
<b>Purity</b>	>98%
<b>Customer comments</b>	<i>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</i>

*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*

### Images

Fig 1: CNQX inhibition of evoked and spontaneous glutamate mediated EPSCs in mouse cortical neuron



### Biological Data

**Biological description** Potent and competitive AMPA and kainate receptor antagonist. Also antagonises NMDA receptors at the glycine site. Increases GABA<sub>A</sub> 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<sub>A</sub>-R antagonists.

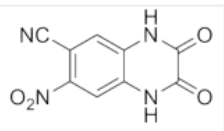
---

## Solubility & Handling

<b>Storage instructions</b>	Room temperature
<b>Solubility overview</b>	Soluble in DMSO (100mM)
<b>Important</b>	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

---

## Chemical Data

<b>Chemical name</b>	6-Cyano-7-nitroquinoxaline-2,3-dione
<b>Molecular Weight</b>	232.16
<b>Chemical structure</b>	
<b>Molecular Formula</b>	C <sub>9</sub> H <sub>4</sub> N <sub>4</sub> O <sub>4</sub>
<b>CAS Number</b>	115066-14-3
<b>PubChem identifier</b>	3721046
<b>SMILES</b>	C1=C(C(=CC2=C1NC(=O)C(=O)N2)[N+](=O)[O-])C#N
<b>Source</b>	Synthetic
<b>InChi</b>	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)
<b>InChiKey</b>	RPXVIAFEQBNEAX-UHFFFAOYSA-N
<b>MDL number</b>	MFCD00069232
<b>Appearance</b>	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

---

