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# **DATASHEET**

**DNQX** 

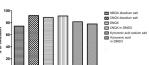
### **Product overview**

Name DNQX
Cat No HB0261
Biological action Antagonist
Purity >98%

**Description** Selective, competitive AMPA / kainate receptor antagonist

## **Images**









## **Biological Data**

**Biological description** 

DNQX is a selective and competitive AMPA and kainate receptor antagonist. DNQX allso acts as partial AMPA agonist in the presence of  $\gamma 2$  transmembrane AMPA receptor regulatory proteins (TARP) subunit.

DNQX is also a neuroleptic agent that displays pro-oxidant activity.

Application notes

Water soluble DNQX disodium is also available.

DNQX antagonizes the actions of glutamate at AMPA receptors. It is commonly used to reduce excitatory post synaptic currents (EPSC) and is commonly used at 10  $\mu$ M. DNQX disodium salt from Hello Bio completely blocks both spontaneous and evoked EPSCs at 10  $\mu$ M, with concentrations of 1  $\mu$ M also effective (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 NBQX disodium salt until complete receptor inhibition.
- Spontaneous EPSCs were recorded before and after addition of NBQX disodium salt by holding the neuron at -70 mV and recording for 10 sec.

## **Solubility & Handling**

Storage instructions Solubility overview Important

Room temperature Soluble in DMSO (100mM)

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** 6,7-Dinitroquinoxaline-2,3-dione

Molecular Weight 252.14

Chemical structure

 $O_2N$  N  $O_2N$  N N O

**SMILES** C1=C2C(=CC(=C1[N+](=O)[O-])[N+](=O)[O-])NC(=O)C(=O)N2

**Source** Synthetic

InChi InChi=1S/C8H4N4O6/c13-7-8(14)10-4-2-6(12(17)18)5(11(15)16)1-3(4)9-7/h1-2H,(H,9,13)(H,10,14)

InChiKey RWVIMCIPOAXUDG-UHFFFAOYSA-N

MDL numberMFCD00069257AppearancePale yellow solid

#### References

Redox properties and prooxidant cytotoxicity of a neuroleptic agent 6,7-dinitrodihydroquinoxaline-2,3-dione (DNQX).

Šarlauskas J *et al* (2013) Acta Biochim Pol 60(2) **PubMedID** 23757451

TARP auxiliary subunits switch AMPA receptor antagonists into partial agonists.

Menuz K *et al* (2007) Science 318(5851) **PubMedID**17975069

Selective excitatory actions of DNQX and CNQX in rat thalamic neurons.

Lee SH *et al* (2010) J Neurophysiol 103(4) **PubMedID** 20107128

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