

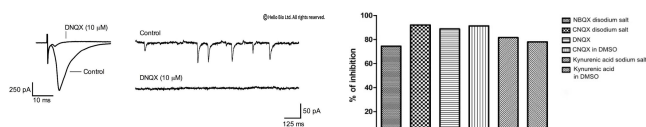
DATASHEET

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 also 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 μ M. DNQX disodium salt from Hello Bio completely blocks both spontaneous and evoked EPSCs at 10 μ M, with concentrations of 1 μ 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 μ s) 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.

- Recordings for EPSCs were made in the absence of GABA_A-R antagonists.

Solubility & Handling

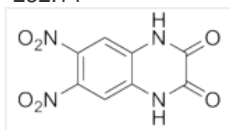
Storage instructions
Solubility overview
Important

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
Molecular Weight
Chemical structure

6,7-Dinitroquinoxaline-2,3-dione
252.14



Molecular Formula
CAS Number
PubChem identifier
SMILES
Source
InChi
InChiKey
MDL number
Appearance

C₈H₄N₄O₆
2379-57-9
3899541
C1=C2C(=CC(=C1[N+](=O)[O-])[N+](=O)[O-])NC(=O)C(=O)N2
Synthetic
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)
RWVIMCIPAOXUDG-UHFFFAOYSA-N
MFCD00069257
Pale 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](#)
