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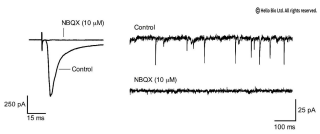
DATASHEET

NBQX

Product overview

Name	NBQX
Cat No	HB0442
Alternative names	FG9202
Biological action	Antagonist
Purity	>98%
Description	Potent, selective, competitive AMPA receptor antagonist

Images



Biological Data

Biological description

Potent, selective and competitive AMPA receptor antagonist. Also kainate receptor antagonist. Blocks the induction of excitatory post synaptic currents. Shows neuroprotective, antinociceptive and anticonvulsive actions. Water soluble, NBQX disodium salt also available.

Application notes

The AMPA receptor antagonist NBQX inhibits the actions of glutamate acting at AMPARs and is commonly used at 10 µM. NBQX from Hello Bio reduces spontaneous and evoked excitatory post synaptic currents (EPSCs) (see Fig 1 above). Complete AMPA receptor blockade was achieved at 10 µM and NBQX was also effective at 1 µM. NBQX was dissolved in DMSO.

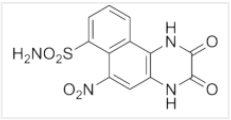
#Protocol 1: Evoked and spontaneous excitatory post synaptic currents (EPSCs)

- 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 until complete receptor inhibition.
- Spontaneous EPSCs were recorded before and after addition of NBQX 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	2,3-Dioxo-6-nitro-1,2,3,4-tetrahydrobenzo[*f*]quinoxaline-7-sulfonamide
Molecular Weight	336.28
Chemical structure	
Molecular Formula	$C_{12}H_8N_4O_6S$
CAS Number	118876-58-7
PubChem identifier	3272524
SMILES	C1=CC2=C3C(=CC(=C2C(=C1)S(=O)(=O)N)[N+](=O)[O-])NC(=O)C(=O)N3
Source	Synthetic
InChi	InChI=1S/C12H8N4O6S/c13-23(21,22)8-3-1-2-5-9(8)7(16(19)20)4-6-10(5)15-12(18)11(17)14-6/h1-4H,(H,14,17)(H,15,18)(H2,13,21,22)
InChiKey	UQNAFPHGVPVTAL-UHFFFAOYSA-N
MDL number	MFCD11046016
Appearance	Yellow solid

References

It is AMPA receptor, not kainate receptor, that contributes to the NBQX-induced antinociception in the spinal cord of rats.

Kong LL *et al* (2006) Brain Res 1100(1)
PubMedID 16777075

Competitive inhibition by NBQX of kainate/AMPA receptor currents and excitatory synaptic potentials: importance of 6-nitro substitution.

Randle JC *et al* (1992) Eur J Pharmacol 215(2-3)
PubMedID 1382998

Both MK801 and NBQX reduce the neuronal damage after impact-acceleration brain injury.

Goda M *et al* (2002) J Neurotrauma 19(11)
PubMedID 12490009

Antiepileptogenic and anticonvulsant effects of NBQX, a selective AMPA receptor antagonist, in the rat kindling model of epilepsy.

Namba T *et al* (1994) Brain Res 638(1-2)
PubMedID 8199874

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