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## DATASHEET

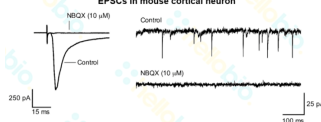
NBQX

### Product overview

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

### Images

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



The AMPA receptor antagonist NBQX inhibits the actions of glutamate acting at AMPARs and is commonly used at 10  $\mu$ M. NBQX from Hello Bio reduces spontaneous and evoked excitatory post synaptic currents (EPSCs). Complete AMPA receptor blockade was achieved at 10  $\mu$ M and NBQX was also effective at 1  $\mu$ M. For assay protocol, see #Protocol 1 in Application Notes below.



### Biological Data

#### Biological description

Potent, selective and competitive AMPA receptor antagonist. Also kainate receptor antagonist. 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  $\mu$ M. 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  $\mu$ M and NBQX was also effective at 1  $\mu$ M. 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  $\mu$ 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 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<sub>A</sub>-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

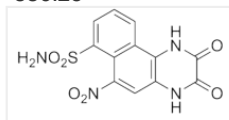
### Chemical name

2,3-Dioxo-6-nitro-1,2,3,4-tetrahydrobenzo[f]quinoxaline-7-sulfonamide

### Molecular Weight

336.28

### Chemical structure



### Molecular Formula

C<sub>12</sub>H<sub>8</sub>N<sub>4</sub>O<sub>6</sub>S

### 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

UQNAPFHGVPVTAL-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