Product Data Sheet

CNQX

Cat. No.: B6222

CAS No.: 115066-14-3

Formula: C9H4N4O4

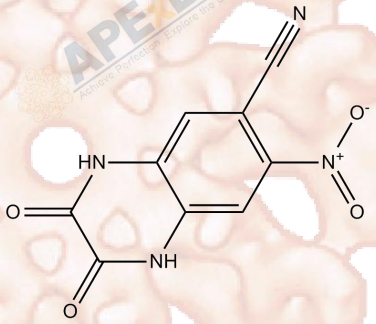
M.Wt: 232.16

Synonyms: 6-cyano-7-nitroquinoxaline-2,3-dione; FG9065

Target: GluR; iGluR

Pathway: Membrane Transporter/Ion Channel; Neuroscience

Storage: Store at RT



Solvent & Solubility

In Vitro

≥23.2 mg/mL in DMSO; insoluble in EtOH; insoluble in H2O

Preparing Stock Solutions

Concentration \ Mass	1mg	5mg	10mg
1 mM	4.3074 mL	21.5369 mL	43.0737 mL
5 mM	0.8615 mL	4.3074 mL	8.6147 mL
10 mM	0.4307 mL	2.1537 mL	4.3074 mL

Please refer to the solubility information to select the appropriate solvent.

Biological Activity

Shortsummary

CNQX (CAS 115066-14-3) is an active quinoxaline derivative compound, functioning as a competitive antagonist at AMPA and kainate receptors in the central nervous system, and exhibiting inhibitory activity at non-NMDA glutamate receptors. Additionally, it acts by selectively blocking excitatory synaptic transmission mediated by these ionotropic glutamate receptors without significant interaction with NMDA receptors.

In experimental conditions, CNQX effectively inhibits receptor-mediated currents with an IC50 of 0.3 μM for AMPA receptors and 1.5 μM for kainate receptors, tested against neuronal cell preparations. It can also

	suppress excitatory postsynaptic potentials and reduce neural hyperexcitability linked to glutamatergic signaling. In pharmacological and neuroscience research, CNQX is widely used for the study of glutamatergic neurotransmission, allowing precise dissection of AMPA and kainate receptor functions in vitro and in vivo. Its efficacy in blocking AMPA/kainate receptor activity makes it valuable for evaluating synaptic mechanisms, understanding neural circuit dynamics, and investigating the molecular underpinnings of excitotoxicity and related neuropathological processes.
IC_{50} & Target	

In Vitro

Cell Viability Assay

Cell Line:	CA3 neurons from male Wistar rats
Preparation method:	For the blockade of mossy fibre EPSP, 4 μM CNQX took approximately 2 minutes to achieve complete and rapid inhibition of the EPSP
Reacting conditions:	2-5 μM CNQX
Applications:	CNQX (FG9065; 2-5 μM) reversibly blocks the Schaffer collateral and mossy fibre excitatory postsynaptic potential (EPSP), while sparing the fast and slow GABA-mediated inhibition in superfusion of hippocampal slices

In Vivo

Animal experiment

Animal models:	Male Wistar rats weighing 180-200 g
Dosage form:	0.75, 1.5, and 3 mg/kg
Applications:	Decreased the number of cocaine (IV; 0.25 mg/infusion) responses in a dose-dependent manner during the first 15-min cocaine-free interval
Preparation method:	IP; 20 min before testing
Other notes:	The technical data provided above is for reference only.

Product Citations

See more customer validations on www.apexbt.com.

References

1. Neuman RS, et al. Blockade of excitatory synaptic transmission by 6-cyano-7-nitroquinoxaline-2,3-dione(CNQX) in the hippocampus in vitro. Neurosci Lett. 1988 Sep 23;92(1):64-8.

2. Pia Bäckström, et al. Attenuation of Cocaine-Seeking Behaviour by the AMPA/kainate Receptor Antagonist CNQX in Rats. Psychopharmacology (Berl). 2003 Feb;166(1):69-76.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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