DNQX

Cat. No.: HY-15067

CAS No.: 2379-57-9

Molecular Formula: $C_8H_4N_4O_6$

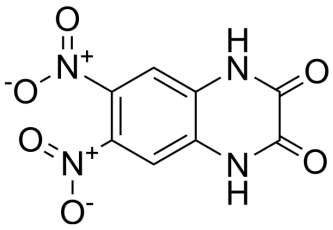
Molecular Weight: 252.14

Target: iGluR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 35 mg/mL (138.81 mM)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.9661 mL	19.8303 mL	39.6605 mL
5 mM	0.7932 mL	3.9661 mL	7.9321 mL
10 mM	0.3966 mL	1.9830 mL	3.9661 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (8.25 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (8.25 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

DNQX (FG 9041), a quinoxaline derivative, is a selective, potent competitive non-NMDA glutamate receptor antagonist (IC_{50}s = 0.5, 2 and 40 μM for AMPA, kainate and NMDA receptors, respectively)[1].

IC_{50} & Target

Kainate Receptor

In Vitro

DNQX selectively depolarizes thalamic reticular nucleus (TRN) neurons[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo	DNQX, a specific AMPA receptor antagonist, given as either a 5 mg/kg or 10 mg/kg intraperitoneal dose or into the lateral cerebral ventricle (5 µl of 0.5 mg/ml) significantly diminishes phencyclidine (PCP) (40 mg/kg) and ketamine (80, 100, 120 mg/kg) hsp70 induction in the posterior cingulate and retrosplenial cortex[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Discov. 2020 Sep 17;6:87.
- Neural Regen Res. 2022 Jan;17(1):178-184.
- J Physiol. 2023 Jul 8.
- J Psychiatr Res. 2023 May 17;163:180-194.

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REFERENCES

[1]. Honoré T, et al. Quinoxalinediones: potent competitive non-NMDA glutamate receptor antagonists. Science. 1988;241(4866):701-703.

[2]. Lee SH, et al. Selective excitatory actions of DNQX and CNQX in rat thalamic neurons. J Neurophysiol. 2010;103(4):1728-1734.

[3]. Sharp JW, et al. DNQX inhibits phencyclidine (PCP) and ketamine induction of the hsp70 heat shock gene in the rat cingulate and retrosplenial cortex. Brain Res. 1995;687(1-2):114-124.

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