Sunifiram

Cat. No.: HY-17550

CAS No.: 314728-85-3

Molecular Formula: $C_{14}H_{18}N_2O_2$

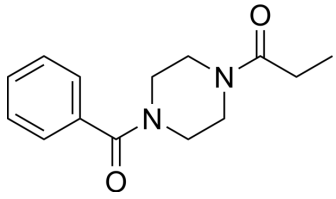
Molecular Weight: 246.3

Target: iGluR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 4°C, stored under nitrogen

* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 50 mg/mL (203.00 mM; Need ultrasonic)

DMSO : ≥ 2.6 mg/mL (10.56 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.0601 mL	20.3004 mL	40.6009 mL
	5 mM	0.8120 mL	4.0601 mL	8.1202 mL
	10 mM	0.4060 mL	2.0300 mL	4.0601 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (203.00 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Sunifiram (DM-235) is a piperazine derived ampakine-like drug which has nootropic effects in animal studies with significantly higher potency than piracetam.IC50 value: Target: in vitro: DM 232 and DM 235 are novel antiamnesic compounds structurally related to ampakines. The involvement of AMPA receptors in the mechanism of action of DM 232 and DM 235 was, therefore, investigated in vivo and in vitro. Both compounds (0.1 mg/kg i.p.) were able to reverse the amnesia induced by the AMPA receptor antagonist NBQX (30 mg/kg i.p.) in the mouse passive avoidance test. At the effective doses, the investigated compounds did not impair motor coordination, as revealed by the rota rod test, nor modify spontaneous motility and inspection activity, as revealed by the hole board test [1]. In mouse hippocampal slices, sunifiram at 10-100 nM significantly enhanced LTP in a bell-shaped dose-response relationship which peaked at 10 nM. The enhancement of LTP by sunifiram treatment was inhibited by 7-chloro-kynurenic acid (7-ClKN), an antagonist for glycine-binding site of NMDAR, but not by ifenprodil, an inhibitor for polyamine site of NMDAR [2].in vivo: OBX mice were administered once a day for 7-12 days with sunifiram (0.01-1.0 mg/kg p.o.) from 10 days after operation with or without gavestinel (10 mg/kg i.p.), which is glycine-binding site inhibitor of N-methyl-d-aspartate receptor (NMDAR) [3].

IC_{50} & Target	AMPA Receptor

REFERENCES

[1]. Galeotti N, et al. AMPA-receptor activation is involved in the antiamnesic effect of DM 232 (unifiram) and DM 235 (sunifiram). Naunyn Schmiedebergs Arch Pharmacol. 2003 Dec;368(6):538-45.

[2]. Moriguchi S, et al. Novel nootropic drug sunifiram enhances hippocampal synaptic efficacy via glycine-binding site of N-methyl-D-aspartate receptor. Hippocampus. 2013 Jun 3.

[3]. Moriguchi S, et al. Novel nootropic drug sunifiram improves cognitive deficits via CaM kinase II and protein kinase C activation in olfactory bulbectomized mice. Behav Brain Res. 2013 Apr 1;242:150-7.

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