Orphenadrine hydrochloride

Cat. No.: HY-B1126

CAS No.: 341-69-5

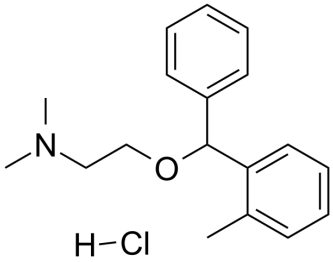
Molecular Formula: $C_{18}H_{24}ClNO$

Molecular Weight: 305.84

Target: iGluR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Orphenadrine hydrochloride is an orally active and non-competitive NMDA receptor antagonist (crosses the blood-brain barrier) with a K_i of 6.0 μM. Orphenadrine hydrochloride relieves stiffness, pain and discomfort due to muscle strains, sprains or other injuries. Orphenadrine hydrochloride is also used to relieve tremors associated with parkinson's disease. Orphenadrine citrate has good neuroprotective properties, can be used in studies of neurodegenerative diseases[1][2].

In Vitro

Orphenadrine hydrochloride (12 μM; 24.5 h) shows neuroprotective effects on 3-NPA-induced neurotoxicity cerebellar granule cells[1].

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

Cell Viability Assay[1]

Cell Line:	CGC cells (7-day-old Sprague Dawley rat)
Concentration:	6, 12, 24, 48 μM
Incubation Time:	24.5 h
Result:	Prevented cells from 3-NPA induced cellular aggregation,volume diminution and neurite fragmentation.

In Vivo

Orphenadrine hydrochloride (10, 20, 30 mg/kg; i.p.; once aday for 3 days) reduces 3-NPA-induced mortality in a dose-dependent manner[1].

Orphenadrine hydrochloride (30 mg/kg; i.p.; once aday for 3 days) shows activity to against 3-NPA-induced neuronal damage in vivo[1].

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

Animal Model:	Adult male Sprague Dawley rats (275-300 g; 3-NPA toxicity model)[1].
Dosage:	10, 20, 30 mg/kg
Administration:	Intraperitoneal injection; once aday for 3 days (30 min before 3-NPA)
Result:	Reduced mortality of 3-NPA toxicity rats to 10-40% (3-NPA-treated animals showed general incoordination, drowsiness and general weakness).

	Recovered 3-NPA-induced body weight loss, and when at 30 mg/kg reduced the level of PBR and expression of HSP27. (PBR and HSP27 are markers of neuronal damage).

REFERENCES

[1]. Pubill D, et al. Orphenadrine prevents 3-nitropropionic acid-induced neurotoxicity in vitro and in vivo. Br J Pharmacol. 2001 Feb;132(3):693-702.

[2]. Kornhuber J, et al. Orphenadrine is an uncompetitive N-methyl-D-aspartate (NMDA) receptor antagonist: binding and patch clamp studies. J Neural Transm Gen Sect. 1995;102(3):237-46.

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