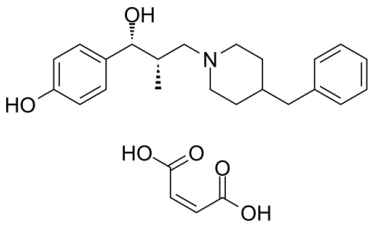
Data Sheet

Product Name:	Ro 25-6981 (Maleate)
Cat. No.:	CS-2012
CAS No.:	1312991-76-6
Molecular Formula:	C26H33NO6
Molecular Weight:	455.54
Target:	iGluR
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling
Solubility:	DMSO : ≥ 61 mg/mL (133.91 mM); H2O : 8.33 mg/mL (18.29 mM; ultrasonic and warming and heat to 45°C)



BIOLOGICAL ACTIVITY:

Ro 25-6981 Maleate is a potent and selective activity-dependent blocker of NMDA receptors containing the NR2B subunit. IC50 values are 0.009 and 52 μM for cloned receptor subunit combinations NR1C/NR2B and NR1C/NR2A respectively. IC50 value: 9 nM [1] Target: NMDA receptor subtype of NR1C & NR2B in vitro: Ro 25-6981 inhibited 3H-MK-801 binding to rat forebrain membranes in a biphasic manner with IC50 values of 0.003 microM and 149 microM for high- (about 60%) and low-affinity sites, respectively. NMDA receptor subtypes expressed in Xenopus oocytes were blocked with IC50 values of 0.009 microM and 52 microM for the subunit combinations NR1C & NR2B and NR1C & NR2A, respectively, which indicated a >5000-fold selectivity [1]. Increasing the concentration of spermidine did not change the efficacy of RO 25-6981 and minimally changed the IC(50) value. Epsilon1Q336R receptors were more inhibited by ifenprodil and RO 25-9681 than wildtype epsilon1 receptors in ligand binding assays but not in functional assays [2]. in vivo: Intrathecal injection of Ro 25-6981 significantly enhanced the paw withdrawal mechanical threshold and paw withdrawal thermal latency after the operation. Significant change has been observed after intrathecal injection of 800.0 μg of Ro 25-6981 and at 2h after operation in the oblique pull test degree and BBB rating score. Pretreatment of Ro 25-6981 decreased the high level expression of NR2B with tyrosine phosphorylation in spinal dorsal horn of the rat model after the operation [3].

PROTOCOL (Extracted from published papers and Only for reference)

Cell assay [1] Cortical neurons from 17- to 18-day-old rat embryos were prepared as described for hippocampal neurons. They were plated on confluent astrocyte feeder layers either on glass coverslips (15 mm diameter) or in 24-multiwell plates (Nunc, Roskilde, Denmark) with cell densities of either 50,000 cells or 150,000 cells/cm2 for electrophysiological or toxicity experiments, respectively. Cells were cultured in DMEM (GIBCO, Grand Island, NY) supplemented with 10% horse serum (Boehringer, Mannheim, Germany) in a 5% CO2 in air atmosphere in a humidified incubator at 37°C. After 5 DIV, cells were treated with 10 μM cytosine arabinoside (Fluka). After 7 DIV one third of the medium of the low-density cultures on coverslips was exchanged, and the cell culture medium of high-density cultures in 24-multiwell plates was replaced completely by DMEM supplemented with 5% horse serum and 10 μM D-AP-5. The cultures were used for the experiments between 5 and 14 DIV. Cortical neurons cultured for 11 to 12 DIV in 24-multiwell plates were washed once with BME (GIBCO) and incubated for 16 h in 300 μl/well of BME supplemented with 18 mM glucose with or without addition of 300 μM glutamate plus 1 μM glycine and various concentrations of test compounds.

References:

[1]. Fischer G, et al. Ro 25-6981, a highly potent and selective blocker of N-methyl-D-aspartate receptors containing the NR2B subunit. Characterization in vitro. J Pharmacol Exp Ther. 1997 Dec;283(3):1285-92.

[2]. Lynch DR, et al. Pharmacological characterization of interactions of RO 25-6981 with the NR2B (epsilon2) subunit. Eur J Pharmacol. 2001 Mar 30;416(3):185-95.

[3]. Jiang M, et al. Antinociception and prevention of hyperalgesia by intrathecal administration of Ro 25-6981, a highly selective antagonist of the 2B subunit of N-methyl-D-aspartate receptor. Pharmacol Biochem Behav. 2013 Nov;112:56-63.

CAIndexNames:

1-Piperidinepropanol,α-(4-hydroxyphenyl)-β-methyl-4-(phenylmethyl)-, (αR,βS)-,(2Z)-2-butenedioate(1:1)

SMILES:

OC1=CC=C([C@H](O)[C@@H](C)CN2CCC(CC3=CC=CC=C3)CC2)C=C1.O=C(O)/C=C\C(O)=O

Tel: 732-484-9848 Fax: 888-484-5008 E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA