ML204 hydrochloride

Cat. No.: HY-12949A

CAS No.: 2070015-10-8

Molecular Formula: $C_{15}H_{19}ClN_2$

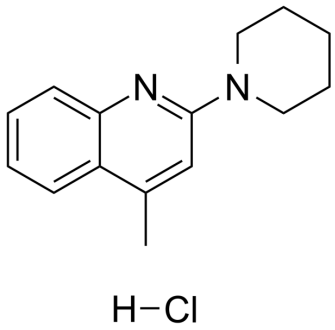
Molecular Weight: 262.78

Target: TRP Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 30 mg/mL (114.16 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	3.8055 mL	19.0273 mL	38.0546 mL
5 mM	0.7611 mL	3.8055 mL	7.6109 mL
10 mM	0.3805 mL	1.9027 mL	3.8055 mL

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

BIOLOGICAL ACTIVITY

Description

ML204 hydrochloride is a novel, potent, selective TRPC4/TRPC5 channel inhibitor, with at least 19-fold selectivity against TRPC6 and no appreciable effect on all other TRP channels, nor on voltage-gated sodium, potassium, or Ca^{2+} channels[1][2].

IC_{50} & Target

TRPC4 | TRPC5

In Vitro

ML204 hydrochloride inhibits TRPC4β-mediated intracellular Ca^{2+} rise with an IC_{50} value of 0.96 μM (HEK293 cells) and exhibits 19-fold selectivity against muscarinic receptor-coupled TRPC6 channel activation[1].

ML204 hydrochloride blocks TRPC4β activity induced through either $G_{i/o}$ stimulation by μ-opioid, $5HT_{1A}$ serotonin, and M_2 muscarinic receptors or $G_{q/11}$ stimulation by the endogenous M_3-like muscarinic receptors[1].

ML204 hydrochloride blocks LPS-induced TRPC5 channel activity[3].

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

In Vivo

ML204 hydrochloride (1 mg/kg; s.c.; twice a day; for 5 days) causes mortality associated with exacerbated hypothermia and decreases peritoneal leukocyte numbers and cytokines in LPS-injected mice[4].

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

Animal Model:	Nonfasted male C57BL/6 (2-3 months)[4]
Dosage:	1 mg/kg
Administration:	Subcutaneous injection, twice a day, for 5 days (prior to LPS injection)
Result:	Induces mortality associated with increased hypothermia in mice with LPS-induced systemic inflammatory response.

CUSTOMER VALIDATION

- J Ethnopharmacol. 2022 Feb 11;290:115105.

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REFERENCES

[1]. Miller M, et al. Identification of ML204, a novel potent antagonist that selectively modulates native TRPC4/C5 ion channels. J Biol Chem. 2011 Sep 23;286(38):33436-46.

[2]. Miller MR, et al. Novel Chemical Inhibitor of TRPC4 Channels. Probe Reports from the NIH Molecular Libraries Program.

[3]. Thomas Schaldecker, et al. Inhibition of the TRPC5 ion channel protects the kidney filter. J Clin Invest. 2013 Dec 2; 123(12): 5298–5309.

[4]. Domingos M S Pereira, et al. Transient Receptor Potential Canonical Channels 4 and 5 Mediate Escherichia coli-Derived Thioredoxin Effects in Lipopolysaccharide-Injected Mice. Oxid Med Cell Longev. 2018 Jun 10;2018:4904696.

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