Proparacaine Hydrochloride

Cat. No.: HY-66012

CAS No.: 5875-06-9

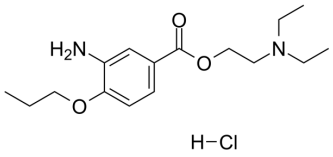
Molecular Formula: $C_{16}H_{27}ClN_2O_3$

Molecular Weight: 330.85

Target: Apoptosis

Pathway: Apoptosis

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

DMSO : 50 mg/mL (151.13 mM; Need ultrasonic)
H_2O : 33.33 mg/mL (100.74 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.0225 mL	15.1126 mL	30.2252 mL
5 mM	0.6045 mL	3.0225 mL	6.0450 mL
10 mM	0.3023 mL	1.5113 mL	3.0225 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 60 mg/mL (181.35 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.56 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.56 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.56 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Proparacaine Hydrochloride (Proxymetacaine Hydrochloride) is a derivative of lidocaine (HY-B0185), with immunomodulatory effect and glucocorticomimetic activity[1][2].

In Vitro

Proparacaine Hydrochloride (>588.93 μM; 4-28 hours) has a dose- and time-dependent cytotoxicity to HCS cells at concentrations in vitro[1].
Proparacaine Hydrochloride (294.47-18.85 mM; 4-12 hours) can induce apoptosis of HCS cells [1].

Proparacaine Hydrochloride (4.71 mM; 4-12 hours) induces G1 phase arrest, plasma membrane permeability elevation, phosphatidylserine externalization, DNA fragmentation, chromatin condensation, and apoptotic body formation of HCS cells[1].
Proparacaine Hydrochloride induces caspase-2, -3 and -9 activation, and mitochondrial transmembrane potential disruption[1].
Proparacaine Hydrochloride (4.71 mM; 4-12 hours) downregulates and upregulates the expression of Bcl-xL and Bax, respectively, and remarkably upregulates cytoplasmic cytochrome C and apoptosis inducing factor[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	HCS cells
Concentration:	294.47 μM, 588.93 μM, 1.18 mM, 2.35 mM, 4.71 mM, 9.42 mM, 18.85 mM
Incubation Time:	4 hours, 8 hours, and 12 hours, 16 hours, 20 hours, 24 hours, 28 hours
Result:	Decreased the viability of HCS cells with concentration and time at concentrations above 588.93 μM.

Apoptosis Analysis[1]

Cell Line:	HCS cells
Concentration:	294.47 μM, 588.93 μM, 1.18 mM, 2.35 mM, 4.71 mM, 9.42 mM, 18.85 mM
Incubation Time:	4 hours, 8 hours, and 12 hours
Result:	Induced apoptosis of HCS cells.

Cell Cycle Analysis[1]

Cell Line:	HCS cells
Concentration:	4.71 mM
Incubation Time:	4 hours, 8 hours, and 12 hours
Result:	Arrested HCS cells at the G1 phase of the cell cycle.

Western Blot Analysis[1]

Cell Line:	HCS cells
Concentration:	4.71 mM
Incubation Time:	4 hours, 8 hours, and 12 hours
Result:	Down-regulated the expression level of anti-apoptotic protein Bcl-xL and up-regulated the pro-apoptotic protein Bax, whereas significantly up-regulated the cytoplasmic amounts of mitochondria-released cytochrome C and apoptosis-inducing factor (AIF).

In Vivo

Proparacaine Hydrochloride (75 μg/30 μL; intranasal administration; for 7 days) significantly decreases nasal symptoms, number of eosinophils, goblet cells, and mast cells in the lamina propria of the nasal mucosa[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	7-week-old female BALB/c mice, allergic rhinitis model[2]

Dosage:	75 μg/30 μL
Administration:	Intranasal administration, for 7 days
Result:	Significantly reduced nasal rubbing and sneezing.

REFERENCES

[1]. Wen Yi Fan, et al. Proparacaine induces cytotoxicity and mitochondria-dependent apoptosis in corneal stromal cells both in vitro and in vivo. Toxicol Res (Camb). 2016 Sep 1; 5(5): 1434-1444.

[2]. Hwan Soo Kim, et al. Effect of Proparacaine in a Mouse Model of Allergic Rhinitis. Clin Exp Otorhinolaryngol. 2017 Dec; 10(4): 325–331.

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