Ropivacaine mesylate

Cat. No.: HY-B0563C

CAS No.: 854056-07-8

Molecular Formula: $C_{18}H_{30}N_2O_4S$

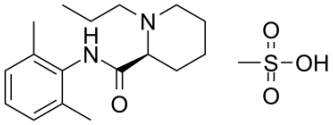
Molecular Weight: 370.51

Target: Sodium Channel; Potassium Channel

Pathway: Membrane Transporter/Ion Channel

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 250 mg/mL (674.75 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6990 mL	13.4949 mL	26.9898 mL
	5 mM	0.5398 mL	2.6990 mL	5.3980 mL
	10 mM	0.2699 mL	1.3495 mL	2.6990 mL

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

BIOLOGICAL ACTIVITY

Description

Ropivacaine mesylate is a long-acting amide local anaesthetic agent for a spinal block and effectively blocks neuropathic pain. Ropivacaine blocks impulse conduction via reversible inhibition of sodium ion influx in nerve fibressup>[1][2].
Ropivacaine is also an inhibitor of K_{2P} (two-pore domain potassium channel) TREK-1 with an IC_{50} of 402.7 μM in COS-7 cell's membrane[3].

IC_{50} & Target

IC50: sodium ion influx[1]
IC50: 402.7 μM (TREK-1 in COS-7 cell's membrane)[3]

In Vivo

Epidural administration of Ropivacaine mesylate effectively blocks neuropathic pain (both mechanical allodynia and heat hyperalgesia) without induction of analgesic tolerance and significantly delays the development of neuropathic pain produced by peripheral nerve injury[1].
Ropivacaine mesylate inhibits pressure-induced increases in filtration coefficient (Kf) without affecting pulmonary artery pressure (Ppa), pulmonary capillary pressures (Ppc), and zonal characteristics (ZC)[2].
Ropivacaine mesylate prevents pressure-induced lung edema and associated hyperpermeability as evidence by maintaining PaO2, lung wet-to-dry ratio and plasma volume in levels similar to sham rats[2].

Ropivacaine mesylate inhibits pressure-induced NO production as evidenced by decreased lung nitro-tyrosine content when compared to hypertensive lungs[2].

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

Animal Model:	Adult Sprague-Dawley rats (300-400g)[2]
Dosage:	1 μM
Administration:	Infusion (added to the perfusate reservoir)
Result:	Attenuated pressure-dependent increases in filtration coefficient (K_f).

REFERENCES

[1]. Li TF, et al. Epidural sustained release ropivacaine prolongs anti-allodynia and anti-hyperalgesia in developing and established neuropathic pain. PLoS One. 2015 Jan 24;10(1):e0117321.

[2]. Milan Patel, et al. Ropivacaine Inhibits Pressure-Induced Lung Endothelial Hyperpermeability in Models of Acute Hypertension. Life Sci. 2019 Apr 1;222:22-28.

[3]. Dene Simpson, et al. Ropivacaine: a review of its use in regional anaesthesia and acute pain management. Drugs. 2005;65(18):2675-717.

[4]. Hye Won Shin, et al. The inhibitory effects of bupivacaine, levobupivacaine, and ropivacaine on K2P (two-pore domain potassium) channel TREK-1. J Anesth. 2014 Feb;28(1):81-6.

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