Methocarbamol

Cat. No.: HY-B0262

CAS No.: 532-03-6

Molecular Formula: $C_{11}H_{15}NO_5$

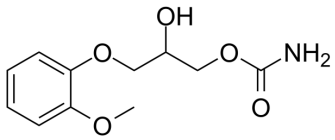
Molecular Weight: 241.24

Target: Sodium Channel

Pathway: Membrane Transporter/Ion Channel

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (414.52 mM)

H_2O : 4 mg/mL (16.58 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.1452 mL	20.7262 mL	41.4525 mL
5 mM	0.8290 mL	4.1452 mL	8.2905 mL
10 mM	0.4145 mL	2.0726 mL	4.1452 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 25 mg/mL (103.63 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 3.5 mg/mL (14.51 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 3.5 mg/mL (14.51 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 3.5 mg/mL (14.51 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Methocarbamol is an orally active central muscle relaxant and blocks muscular Nav1.4 channel. Methocarbamol reversibly affects voltage dependence of inactivation of Nav1.4 channel. Methocarbamol has the potential for muscle spasms and pain syndromes research[1][2][3].

IC_{50} & Target	$Na_V1.4$
In Vitro	Methocarbamol (2 mM; for 20 min) significantly increases the decay times of the EPCs and those of the EPPs induced by the phrenic nerve stimulation[3]. Methocarbamol has no effect on Nav1.7 currents[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Methocarbamol (200 mg/kg; ip) has Muscle relaxant activity of 88.96%[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Mice with weight 20-30 g[3]
Dosage:	200 mg/kg
Administration:	IP; single dose
Result:	Had Muscle relaxant activity of 88.96%.

REFERENCES

[1]. Bruce, R.B., L.B. Turnbull, and J.H. Newman, Metabolism of methocarbamol in the rat, dog, and human. J Pharm Sci, 1971. 60(1): p. 104-6.

[2]. Sica, D.A., et al., Pharmacokinetics and protein binding of methocarbamol in renal insufficiency and normals. Eur J Clin Pharmacol, 1990. 39(2): p. 193-4.

[3]. Yaxin Zhang, et al. Methocarbamol blocks muscular Na v 1.4 channels and decreases isometric force of mouse muscles. Muscle Nerve. 2020 Oct 11.

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