Oxybutynin chloride

Cat. No.: HY-B0267A

CAS No.: 1508-65-2

Molecular Formula: $C_{22}H_{32}ClNO_3$

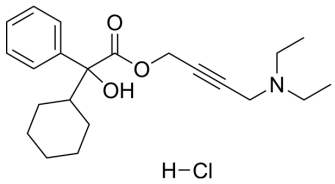
Molecular Weight: 393.95

Target: mAChR; Potassium Channel

Pathway: GPCR/G Protein; Neuronal Signaling; Membrane Transporter/Ion Channel

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 : ≥ 100 mg/mL (253.84 mM)

H_2O : 33.33 mg/mL (84.60 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5384 mL	12.6920 mL	25.3839 mL
	5 mM	0.5077 mL	2.5384 mL	5.0768 mL
	10 mM	0.2538 mL	1.2692 mL	2.5384 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (253.84 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 (6.35 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.35 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Oxybutynin chloride is an oral active and competitive mAChR antagonist with K_is of 14.3 and 5.55 nM for specific [^{3}H]NMS binding in the mouse bladder and cerebral cortex, respectively. Oxybutynin chloride inhibits vascular Kv channels in a manner independent of anticholinergic effect, with an IC_{50} value of 11.51 μM. Oxybutynin chloride reduces muscle spasm in the bladder and urinary tract, can be used in study of overactive bladder syndrome (OAB)[1][2]. Oxybutynin (chloride) is a click chemistry reagent, it contains an Alkyne group and can undergo copper-catalyzed azide-alkyne cycloaddition (CuAAc)

	with molecules containing Azide groups.
In Vitro	Oxybutynin chloride (0.1, 0.3, 1, 3, 10, 30, 100 μM; 200 ms) inhibits vascular Kv channels in a concentration-dependent manner independent of anticholinergic effect in coronary arterial smooth muscle cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Coronary arterial smooth muscle cells (from Male New Zealand White rabbits)
Concentration:	10 μM
Incubation Time:	200 ms
Result:	Rapidly inhibited the Kv current within 2 min and reduced the Kv current by 44% at +60 Mv. Inhibited the Kv current by changing the gating properties of Kv channels.

Cell Viability Assay[1]

Cell Line:	Coronary arterial smooth muscle cells (from male New Zealand White rabbits)
Concentration:	0.1, 0.3, 1, 3, 10, 30, 100 μM
Incubation Time:	200 ms
Result:	Reduced the Kv current amplitude in a concentration-dependent manner, with an IC_{50} value of 11.51 μM.

In Vivo

Oxybutynin chloride (27.2 mg/kg; p.o.; single) exhibits significant binding of mouse brain muscarinic receptors that about a 2-fold increase in K_d values for specific [^{3}H]N-methylscopolamine binding 0.5 and 2 h later[2].

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

Animal Model:	Male ddY strain mice (9 to 13-week-old)[2].
Dosage:	27.2 mg/kg (76.1 μmol/kg)
Administration:	Oral administration; single.
Result:	Significant increased K_d values for specific [^{3}H]NMS binding in mouse bladder with values of 54.7% and 40.6% when at 0.5 and 2 hours, respectively. Significant increased K_d values for specific [^{3}H]NMS binding in mouse cerebral cortex with values of 120% and 71.2% when at 0.5 and 2 hours, respectively.

REFERENCES

[1]. Li H, et al. The anticholinergic drug oxybutynin inhibits voltage-dependent K+ channels in coronary arterial smooth muscle cells. Clin Exp Pharmacol Physiol. 2019 Nov;46(11):1030-1036.

[2]. Oki T, et al. Comparative evaluation of central muscarinic receptor binding activity by oxybutynin, tolterodine and darifenacin used to treat overactive bladder. J Urol. 2007 Feb;177(2):766-70.

Caution: Product has not been fully validated for medical applications. For research use only.

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