Oxybutynin

Cat. No.: HY-B0267

CAS No.: 5633-20-5

Molecular Formula: $C_{22}H_{31}NO_3$

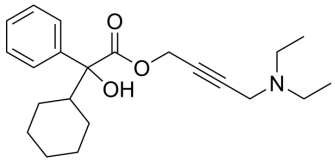
Molecular Weight: 357.49

Target: mAChR; Potassium Channel

Pathway: GPCR/G Protein; Neuronal Signaling; 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 (279.73 mM; Need ultrasonic)

H_2O : ≥ 50 mg/mL (139.86 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7973 mL	13.9864 mL	27.9728 mL
5 mM	0.5595 mL	2.7973 mL	5.5946 mL
10 mM	0.2797 mL	1.3986 mL	2.7973 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.08 mg/mL (5.82 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.82 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.82 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Oxybutynin is an anticholinergic agent, which inhibits vascular K_v channels in a concentration-dependent manner, with an IC_{50} of 11.51 μM[1]. Oxybutynin 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 (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 (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.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA