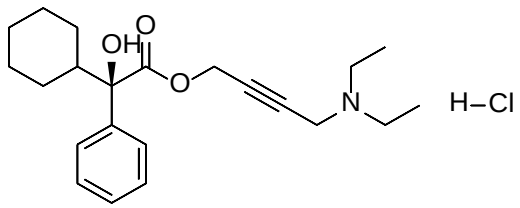
Product data sheet

MedKoo Cat#: 318405 Name: Oxybutynin R-isomer HCl CAS: 1207344-05-5 (R-isomer HCl) Chemical Formula: $C_{22}H_{32}ClNO_3$ Molecular Weight: 393.952	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Oxybutynin R-isomer, also known as Aroxybutynin, is a muscarinic receptor antagonist. Aroxybutynin is the optically avtice inhibitor of proliferation and supresses gene expression in bladder smooth muscle cells. Oxybutynin exerts direct antispasmodic effect on smooth muscle and inhibits the muscarinic action of acetylcholine on smooth muscle. It exhibits one-fifth of the anticholinergic activity of atropine on the rabbit detrusor muscle, but four to ten times the antispasmodic activity. No blocking effects occur at skeletal neuromuscular junctions or autonomic ganglia (antinicotinic effects).

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.54 mL	12.69 mL	25.38 mL
5 mM	0.51 mL	2.54 mL	5.08 mL
10 mM	0.25 mL	1.27 mL	2.54 mL
50 mM	0.05 mL	0.25 mL	0.51 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Park JM, Bauer SB, Freeman MR, Peters CA. Oxybutynin chloride inhibits proliferation and suppresses gene expression in bladder smooth muscle cells. J Urol. 1999 Sep;162(3 Pt 2):1110-4. doi: 10.1016/S0022-5347(01)68086-8. PMID: 10458442.

In vivo study

1. Haga N, Aikawa K, Shishido K, Takahashi N, Yanagida T, Yamaguchi O. Effect of long-term oxybutynin administration on c-Fos expression in spinal neurons: inhibition of antimuscarinics on bladder afferents in conscious rats. Urology. 2009 Jan;73(1):200-4. doi: 10.1016/j.urology.2008.04.038. Epub 2008 Jun 17. PMID: 18561989.
2. Klausner AP, Sharma S, Fletcher S, Neff P, Yang SK, Son H, Tuttle JB, Steers WD. Does oxybutynin alter plaques, amyloid beta peptides and behavior in a mouse model of Alzheimer's disease? J Urol. 2008 Mar;179(3):1173-7. doi: 10.1016/j.juro.2007.10.034. PMID: 18206173.

7. Bioactivity

Biological target:

Oxybutynin R-isomer, also known as Aroxybutynin, is a muscarinic receptor antagonist.

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In vitro activity

The serum stimulated increase in bladder smooth muscle cell growth was inhibited by oxybutynin in a dose dependent manner. In bladder smooth muscle cells there was a 4.7-fold increase in deoxyribonucleic acid synthesis after mechanical stretch, which decreased by 40% ($p < 0.01$) when cells were stretched in the presence of oxybutynin. Stretch stimulated significant increase in c-jun mNRA levels, which was significantly decreased by oxybutynin.

Reference: J Urol. 1999 Sep;162(3 Pt 2):1110-4. https://pubmed.ncbi.nlm.nih.gov/10458442/

In vivo activity

The long-term administration of low-dose oxybutynin (0.36 mg/kg/d) significantly increased the micturition interval and bladder capacity, but it did not affect micturition pressure. However, administration of high-dose oxybutynin (3.6 mg/kg/d) significantly decreased the micturition pressure and increased the residual volume. In the rats that received low-dose oxybutynin, the number of c-Fos-positive neurons in the spinal cord was significantly lower than that in controls.

Reference: Urology. 2009 Jan;73(1):200-4. https://pubmed.ncbi.nlm.nih.gov/18561989/