Product data sheet



MedKoo Cat#: 318406				
Name: Oxymetazoline HCl				
CAS: 2315-02-8 (HCl)				
Chemical Formula: C ₁₆ H ₂₅ ClN ₂ O				
Exact Mass: 260.1655				
Molecular Weight: 296.839				
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:

Oxymetazoline is a selective α 1 adrenergic receptor agonist and α 2 adrenergic receptor partial agonist. It is a topical decongestant, used in the form of oxymetazoline hydrochloride in products such as Afrin, Dristan, Nasivin, Nezeril, Nostrilla, Logicin, Vicks Sinex, Visine L.R., Sudafed OM, Zicam, SinuFrin and Mucinex Sinus-Max. It was developed from xylometazoline at E. Merck Darmstadt by Fruhstorfer in 1961. Oxymetazoline is generally available as a nasal spray.

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		
DMF	20.0	67.38		
DMSO	25.0	84.22		
Ethanol	25.0	84.22		
PBS (pH 7.2)	10.0	33.69		

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.37 mL	16.84 mL	33.69 mL
5 mM	0.67 mL	3.37 mL	6.74 mL
10 mM	0.34 mL	1.68 mL	3.37 mL
50 mM	0.07 mL	0.34 mL	0.67 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

 Beck-Speier I, Oswald B, Maier KL, Karg E, Ramseger R. Oxymetazoline inhibits and resolves inflammatory reactions in human neutrophils. J Pharmacol Sci. 2009 Jul;110(3):276-84. doi: 10.1254/jphs.09012fp. PMID: 19609065; PMCID: PMC7128694.
Schoeffter P, Hoyer D. Interaction of the alpha-adrenoceptor agonist oxymetazoline with serotonin 5-HT1A, 5-HT1B, 5-HT1C and 5-HT1D receptors. Eur J Pharmacol. 1991 Apr 17;196(2):213-6. doi: 10.1016/0014-2999(91)90432-p. PMID: 1678720.

In vivo study

1. Cengiz B, Bostancıklıoğlu M, Demir T, Karabulut H, Dokuyucu R, Ulaşlı M. Investigation of Cytotoxic Effects of Oxymetazoline on Lungs in a Rat Model of Rhinitis Medicamentosa. Curr Mol Pharmacol. 2021 Oct 25;14(4):658-666. doi: 10.2174/1874467213666200727124105. PMID: 32718303.

7. Bioactivity

Biological target:

Product data sheet



Oxymetazoline is a selective a1 adrenergic receptor agonist and a2 adrenergic receptor partial agonist.

In vitro activity

At 5-HT1C receptors, oxymetazoline behaved as a mixed agonist-antagonist. Clonidine had minimal activity. Methiothepin antagonized the effects of oxymetazoline (7.4 less than pKB less than 8.8). Thus, oxymetazoline is a full and potent agonist at 5-HT1A, 5-HT1B and 5-HT1D receptors and a partial agonist at 5-HT1C receptors.

Reference: Eur J Pharmacol. 1991 Apr 17;196(2):213-6. https://pubmed.ncbi.nlm.nih.gov/1678720/

In vivo activity

Thirty Wistar-albino rats were used to form the rhinitis medicamentosa model. After rhinitis medicamentosa was clinically detected, this study removed the whole lungs of animals to perform the molecular analyses of cell death pathways. This study found a statistically significant decrease in the expression levels of Atg5 (p=0.021), Atg7 (p=0.013) and Ulk1 (p=0.036) in the oxymetazoline group compared to the control group (p<0.05); however, Caspase 3 expression level was recorded to be significantly increased in the oxymetazoline group, and the expression level of Beclin1 recorded to be substantially increased in the erdosteine group (p=0.001).

Reference: Curr Mol Pharmacol. 2021 Oct 25;14(4):658-666. https://pubmed.ncbi.nlm.nih.gov/32718303/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.