

Product data sheet



MedKoo Cat#: 540308 Name: Naphazoline HCl CAS: 550-99-2 Chemical Formula: C ₁₄ H ₁₅ ClN ₂ Exact Mass: 246.0924 Molecular Weight: 246.738	
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:

Naphazoline HCl is an α 1-Adrenergic receptor agonist used to treat congestion and ocular pathologies. It also induces autophagy and necrotic cell death in erythroleukemia cells and inhibits erythroid differentiation.

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	1.0	4.05
DMSO	17.33	70.25
Ethanol	16.0	64.85
PBS (pH 7.2)	10.0	40.53
Water	49.5	200.62

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.05 mL	20.26 mL	40.53 mL
5 mM	0.81 mL	4.05 mL	8.11 mL
10 mM	0.41 mL	2.03 mL	4.05 mL
50 mM	0.08 mL	0.41 mL	0.81 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. Fuchs R, Schraml E, Leitinger G, Letofsky-Papst I, Stelzer I, Haas HS, Schauenstein K, Sadjak A. α 1-adrenergic drugs exhibit affinity to a thapsigargin-sensitive binding site and interfere with the intracellular Ca²⁺ homeostasis in human erythroleukemia cells. *Exp Cell Res.* 2011 Dec 10;317(20):2969-80. doi: 10.1016/j.yexcr.2011.08.003. Epub 2011 Aug 9. PMID: 21851819.

In vivo study

1. Quan L, He H. Treatment with olopatadine and naphazoline hydrochloride reduces allergic conjunctivitis in mice through alterations in inflammation, NGF and VEGF. *Mol Med Rep.* 2016 Apr;13(4):3319-25. doi: 10.3892/mmr.2016.4937. Epub 2016 Feb 23. PMID: 26936233.

2. Tanaka Y, Mizutani N, Fujii M, Nabe T, Kohno S. Different mechanisms between thromboxane A₂- and leukotriene D₄-induced nasal blockage in guinea pigs. *Prostaglandins Other Lipid Mediat.* 2006 Sep;80(3-4):144-54. doi: 10.1016/j.prostaglandins.2006.06.003. Epub 2006 Jul 25. PMID: 16939879.

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7. Bioactivity

Biological target:

Naphazoline (Naphthazoline) hydrochloride is a potent α -adrenergic receptor agonist.

In vitro activity

This study discovered that the α 1-adrenergic agonists naphazoline, oxymetazoline and also the α 1-adrenergic antagonist benoxathian are able to raise the intracellular Ca^{2+} -content in K562 cells. Furthermore, this study demonstrates that naphazoline treatment induces ROS-formation as well as an increase in $\Delta\psi_m$ in K562 cells.

Reference: Exp Cell Res. 2011 Dec 10;317(20):2969-80. <https://pubmed.ncbi.nlm.nih.gov/21851819/>

In vivo activity

An allergic conjunctivitis mouse model was established using histamine or an antigen (ovalbumin), following which mice were treated with 1% olopatadine solution and/or 0.2 mg/ml of naphazoline hydrochloride. The results indicated that olopatadine and naphazoline hydrochloride significantly suppressed conjunctival dye leakage in mice with histamine or antigen-induced conjunctival vascular hyperpermeability. In addition, treatment with olopatadine and naphazoline hydrochloride was able to reduce the levels of inflammatory factors (TNF- α , IL-1 β and IL-6), cytokines (IFN- γ and IL-4), IgE, GMCSF, and NGF in antigen-induced conjunctival vascular hyperpermeability mice.

Reference: Mol Med Rep. 2016 Apr;13(4):3319-25. <https://pubmed.ncbi.nlm.nih.gov/26936233/>

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.