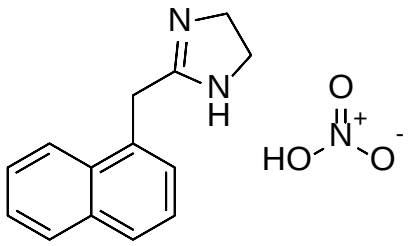
Product data sheet

MedKoo Cat#: 540309 Name: Naphazoline nitrate CAS: 5144-52-5 Chemical Formula: $C_{14}H_{15}N_3O_3$ Exact Mass: 273.1113 Molecular Weight: 273.292	
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 nitrate is α1-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
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.66 mL	18.30 mL	36.59 mL
5 mM	0.73 mL	3.66 mL	7.32 mL
10 mM	0.37 mL	1.83 mL	3.66 mL
50 mM	0.07 mL	0.37 mL	0.73 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. α1-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.

7. Bioactivity
Biological target:
Naphazoline (Naphthazoline) nitrate is an α-adrenergic receptor agonist.

Product data sheet

In vitro activity

This study discovered that the α1-adrenergic agonists naphazoline, oxymetazoline and also the α1-adrenergic antagonist benoxathian are able to raise the intracellular Ca2+-content in K562 cells. Furthermore, this study demonstrates that naphazoline treatment induces ROS-formation as well as an increase in Δψm 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-1β 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.