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ProductInformation

2,3-Dimercapto-1-propanol

Product Number **D 1129**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_3H_8OS_2$
Molecular Weight: 124.2
CAS Number: 59-52-9
Boiling Point: 140 °C (40 mm Hg)[1]
Density: 1.2385 g/ml[1]
Synonym: dimercaprol; 2,3-dimercaptopropanol; 1,2-dithioglycerol; British Anti-Lewisite; BAL

2,3-Dimercapto-1-propanol is a reducing agent that serves a similar function to dithiothreitol. It is also a chelating agent for heavy metals such as lead, mercury, and arsenic, and has been studied in toxicology research.[2] Dimercaprol can maintain sulfhydryl groups in the reduced state and can reverse arsenic-related inhibition of various enzymes, such as pyruvic and α-ketoglutaric oxidases.[3]

Dimercaprol has been used to chelate labile zinc and subsequently alter eotaxin, RANTES, and MCP-1 production in stimulated human airway epithelium and fibroblasts.[4] Dimercaprol (3 mM) has been utilized to probe the inhibition of activity of voltage-gated Ca^{2+} channels in *Xenopus* oocytes by syntaxin 1A.[5] A comparative study has indicated that dimercaprol can inhibit Ca^{2+} transport by Ca^{2+}-ATPases in the microsome sarco/endoplasmic reticulum from brain, but not from fast-skeletal muscle.[6]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is miscible in ethanol (0.1 ml/ml, v/v), yielding a clear, colorless solution. It is also soluble in chloroform (100 mg/mL, w/v). This product is soluble in ether and in vegetable oils, and in water (68 mg/ml, w/v) with slow decomposition.[2]

Storage/Stability

This product oxidizes in aqueous solution to a disulfide, in the presence of air. At pH 5, the rate is negligible, but in alkaline solution, the rate is rapid.[2]

References

1. The Merck Index, 12th ed., Entry# 3255.
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3. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), p. 380-381.
4. Richter, M., et al., Zinc chelators inhibit eotaxin, RANTES, and MCP-1 production in stimulated human airway epithelium and fibroblasts. Am. J. Physiol. Lung Cell. Mol. Physiol., **285(3)**, L719-729 (2003).
5. Arien, H., et al., Syntaxin 1A modulates the voltage-gated L-type calcium channel ($Ca_v1.2$) in a cooperative manner. J. Biol. Chem., **278(31)**, 29231-29239 (2003).
6. Quinhones, E. B., et al., 2,3-Dimercaptopropanol inhibits Ca^{2+} transport in microsomes from brain but not from fast-skeletal muscle. Neurochem Res., **26(3)**, 251-256 (2001).

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