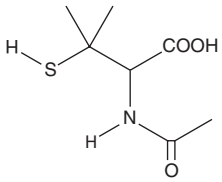
PRODUCT INFORMATION

N-Acetyl-DL-Penicillamine

Item No. 10010404

CAS Registry No.: 59-53-0
Formal Name: N-acetyl-3-mercapto-valine
Synonyms: NAPA, NSC 28039, NSC 92752
MF: $C_7H_{13}NO_3S$
FW: 191.2
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

N-Acetyl-DL-penicillamine is supplied as a crystalline solid. A stock solution may be made by dissolving the N-acetyl-DL-penicillamine in the solvent of choice, which should be purged with an inert gas. N-Acetyl-DL-penicillamine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of N-acetyl-DL-penicillamine in these solvents is approximately 5 mg/ml in ethanol and 30 mg/ml in DMSO and DMF.

N-Acetyl-DL-penicillamine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, N-acetyl-DL-penicillamine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. N-Acetyl-DL-penicillamine has a solubility of approximately 0.12 mg/ml in a 1:7 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

N-Acetyl-DL-penicillamine is a chelating agent.[1-3] It inhibits the binding of methyl mercury to isolated human erythrocytes by 50% and removes 50% of methyl mercury ions from methyl mercury-loaded blood cells when used at a concentration of 1 mM.[1,3] N-Acetyl-DL-penicillamine (3 mmol/kg per day, p.o.) reduces the biological half-life of mercury and decreases liver, kidney, brain, and blood mercury levels, as well as increases urinary excretion of mercury in a concentration-dependent manner, in mice when administered following injection of methyl mercuric chloride. It decreases mercuric chloride-induced mortality in mice when administered orally at a dose of 1.6 mmol/kg.[2] N-Acetyl-DL-penicillamine is also an analog of SNAP (Item No. 82250) that does not generate nitric oxide and has been used as a negative control in experiments using SNAP.[4,5]

References

1. Aaseth, J. Mobilization of methyl mercury *in vivo* and *in vitro* using N-acetyl-DL-penicillamine and other complexing agents. *Acta Pharm. Toxicol. (Copenh.)* **39(3)**, 289-301 (1976).
2. Nielsen, J.B. and Andersen, O. Effect of four thiol-containing chelators on disposition of orally administered mercuric chloride. *Hum. Exp. Toxicol.* **10(6)**, 423-430 (1991).
3. Aaseth, J., Alexander, J., and Deverill, J. Evaluation of methyl mercury chelating agents using red blood cells and isolated hepatocytes. *Chem. Biol. Interact.* **36(3)**, 287-297 (1981).
4. Ogura, T., DeGeorge, G., Tatemichi, M., *et al*. Suppression of anti-microtubule agent-induced apoptosis by nitric oxide: Possible mechanism of a new drug resistance. *Jpn. J. Cancer Res.* **89(2)**, 199-205 (1998).
5. Takhampunya, R., Padmanabhan, R., and Ubol, S. Antiviral action of nitric oxide on dengue virus type 2 replication. *J. Gen. Virol.* **87(Pt. 10)**, 3003-3011 (2006).

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