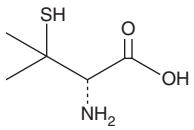
PRODUCT INFORMATION

D-Penicillamine

Item No. 23955

CAS Registry No.:	52-67-5
Formal Name:	3-mercapto-D-valine
Synonyms:	NSC 81549, β-Thiovaline
MF:	$C_5H_{11}NO_2S$
FW:	149.2
Purity:	≥98%
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

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

D-Penicillamine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, D-penicillamine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. D-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

D-Penicillamine is an orally bioavailable copper chelator and penicillin degradation product.[1,2] It increases urinary and fecal copper excretion and decreases liver copper concentration in a rat model of copper overload when administered at 0.67 mmol/kg per day, but does not affect kidney, spleen, or brain copper levels.[3] D-Penicillamine (100 mg/kg per day) dissolves copper-rich granules in hepatic lysosomes of Long-Evans cinnamon (LEC) rats, which spontaneously develop hepatic injury and acute hepatitis and have a mutation homologous to that of the human Wilson disease gene.[4] D-Penicillamine has anticonvulsant and proconvulsant effects in mice when administered at 0.5 and 250 mg/kg, respectively, which are blocked by the nitric oxide synthase (NOS) inhibitors L-NAME (Item No. 80210) and 7-nitroindazole (Item No. 81340).[5] Formulations containing D-penicillamine have been used to treat Wilson disease, cystinuria, and active rheumatoid arthritis.

References

1. Delangle, P. and Mintz, E. *Dalton Trans.* **41(21)**, 6359-6370 (2012).
2. Abraham, E.P., Chain, E., Baker, W., *et al. Nature* **151(3821)**, 107 (1943).
3. Domingo, J.L., Gómez, M., and Jones, M.M. *Biol. Trace Elem. Res.* **74(2)**, 127-139 (2000).
4. Klein, D., Lichtmannegger, J., Heinzmann, U., *et al. J. Hepatol.* **32(2)**, 193-201 (2000).
5. Rahimi, N., Sadeghzadeh, M., Javadi-Paydar, M., *et al. Epilepsy Behav.* **39**, 42-47 (2014).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM