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Produktinformation

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- Diagnostik & molekulare Diagnostik
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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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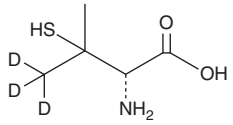
PRODUCT INFORMATION

Penicillamine-d_3

Item No. 33797

Formal Name:	3-mercapto-D-valine-4,4,4-d_3
Synonyms:	D-Penicillamine-d_3, β-Thiovaline-d_3
MF:	$C_5H_8D_3NO_2S$
FW:	152.2
Chemical Purity:	≥95% (Penicillamine)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as:	A solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Penicillamine-d_3 is intended for use as an internal standard for the quantification of penicillamine (Item No. 23955) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Penicillamine-d_3 is supplied as a solid. A stock solution may be made by dissolving the penicillamine-d_3 in the solvent of choice, which should be purged with an inert gas. Penicillamine-d_3 is soluble in water.

Description

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] 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] 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 penicillamine have been used to treat Wilson disease, cystinuria, and active rheumatoid arthritis.

References

1. Delangle, P. and Mintz, E. Chelation therapy in Wilson's disease: From D-penicillamine to the design of selective bioinspired intracellular Cu(I) chelators. *Dalton Trans.* **41(21)**, 6359-6370 (2012).
2. Abraham, E.P., Chain, E., Baker, W., *et al.* Penicillamine, a characteristic degradation product of penicillin. *Nature* **151(3821)**, 107 (1943).
3. Domingo, J.L., Gómez, M., and Jones, M.M. Comparative efficacy of several potential treatments for copper mobilization in copper-overloaded rats. *Biol. Trace Elem. Res.* **74(2)**, 127-139 (2000).
4. Klein, D., Lichtmannegger, J., Heinzmann, U., *et al.* Dissolution of copper-rich granules in hepatic lysosomes by D-penicillamine prevents the development of fulminant hepatitis in Long-Evans cinnamon rats. *J. Hepatol.* **32(2)**, 193-201 (2000).
5. Rahimi, N., Sadeghzadeh, M., Javad-Paydar, M., *et al.* Effects of D-penicillamine on pentylenetetrazole-induced seizures in mice: involvement of nitric oxide/NMDA pathways. *Epilepsy Behav.* **39**, 42-47 (2014).

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