

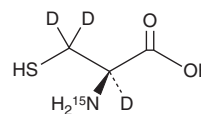
PRODUCT INFORMATION



L-Cysteine-¹⁵N-d₃

Item No. 34838

CAS Registry No.:	1795787-05-1
Formal Name:	L-cysteine-2,3,3-d ₃ - ¹⁵ N
Synonyms:	L-Cys- ¹⁵ N-d ₃ , L-(+)-Cysteine- ¹⁵ N-d ₃ , (R)-Cysteine- ¹⁵ N-d ₃
MF:	C ₃ H ₄ D ₃ [¹⁵ N]O ₂ S
FW:	125.2
Chemical Purity:	≥95% (L-cysteine)
Deuterium	
Incorporation:	≥99% deuterated forms (d ₁ -d ₃); ≤1% d ₀
Supplied as:	A 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

L-Cysteine-¹⁵N-d₃ is intended for use as an internal standard for the quantification of L-cysteine (Item No. 33309) 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).

L-Cysteine-¹⁵N-d₃ is supplied as a solid. A stock solution may be made by dissolving the L-cysteine-¹⁵N-d₃ in the solvent of choice, which should be purged with an inert gas. L-Cysteine-¹⁵N-d₃ is slightly soluble in methanol.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of L-cysteine-¹⁵N-d₃ can be prepared by directly dissolving the solid in aqueous buffers. L-Cysteine-¹⁵N-d₃ is slightly soluble in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

L-Cysteine is a conditionally essential amino acid.^{1,2} It is produced from L-methionine through the transsulfuration pathway.¹ L-Cysteine can also be derived from dietary sources and protein turnover. It is a precursor in the biosynthesis of the intracellular antioxidant glutathione (GSH; Item No. 10007461). L-Cysteine supplementation increases GSH levels as well as decreases oxidative stress and pro-inflammatory cytokine levels in various rat and porcine disease models, including type 2 diabetes, aging, and inflammatory bowel disease (IBD). It is also an excitotoxin, inducing neuronal damage by overactivation of NMDA receptors.²

References

1. Yin, J., Ren, W., Yang, G., *et al.* L-Cysteine metabolism and its nutritional implications. *Mol. Nutr. Food Res.* **60**(1), 134-146 (2016).
2. Janáky, R., Varga, V., Hermann, A., *et al.* Mechanisms of L-cysteine neurotoxicity. *Neurochem. Res.* **25**(9-10), 1397-1405 (2000).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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