

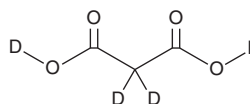
PRODUCT INFORMATION



Malonic Acid-d₄

Item No. 45689

CAS Registry No.: 813-56-9
Formal Name: propanedioic acid-1,3-d₂-2,2-d₂
Synonyms: C3:0-d₄, FA 3:1;O2-d₄, Propanedioic Acid-d₄
MF: C₃D₄O₄
FW: 108.1
Chemical Purity: ≥98% (Malonic Acid)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
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

Malonic acid-d₄ is intended for use as an internal standard for the quantification of malonic acid 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).

Malonic acid-d₄ is supplied as a solid. A stock solution may be made by dissolving the malonic acid-d₄ in the solvent of choice, which should be purged with an inert gas. Malonic acid-d₄ is soluble (≥10 mg/ml) in ethanol and DMSO.

Description

Malonic acid is a dicarboxylic acid. At physiological pH, malonic acid is deprotonated to malonate, which competitively inhibits mitochondrial complex II, also known as succinate dehydrogenase, or is converted into malonyl-coenzyme A (malonyl-CoA; Item No. 16455) for use in fatty acid biosynthesis.^{1,2} Malonic and methylmalonic acid levels are elevated in combined malonic and methylmalonic aciduria, a disorder characterized by deficiency in malonyl-CoA decarboxylase (MCD) or acyl-CoA synthetase family member 3 (ACSF3).³

References

1. Pardee, A.B. and Potter, V.R. Malonate inhibition of oxidations in the Krebs tricarboxylic acid cycle. *J. Biol. Chem.* **178**(1), 241-250 (1949).
2. Bowman, C.E. and Wolfgang, M.J. Role of the malonyl-CoA synthetase ACSF3 in mitochondrial metabolism. *Adv. Biol. Regul.* **71**, 34-40 (2019).
3. de Sain-van der Velden, M.G., van der Ham, M., Jans, J.J., et al. A new approach for fast metabolic diagnostics in CMAMMA. *JMID Rep.* **30**, 15-22 (2016).

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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