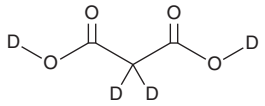
PRODUCT INFORMATION

Malonic Acid-d_4

Item No. 45689

CAS Registry No.: 813-56-9
Formal Name: propanedioic acid-1,3-d_2-2,2-d_2
Synonyms: C3:0-d_4, FA 3:1;O2-d_4, Propanedioic Acid-d_4
MF: $C_3D_4O_4$
FW: 108.1
Chemical Purity: ≥98% (Malonic Acid)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤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

Malonic acid-d_4 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-d_4 is supplied as a solid. A stock solution may be made by dissolving the malonic acid-d_4 in the solvent of choice, which should be purged with an inert gas. Malonic acid-d_4 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).

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