

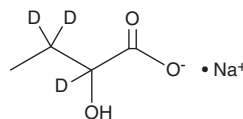
PRODUCT INFORMATION



2-Hydroxybutyrate-d₃ (sodium salt)

Item No. 44009

CAS Registry No.: 1219798-97-6
Formal Name: 2-hydroxy-butanoic-2,3,3-d₃ acid, monosodium salt
Synonyms: 2-HB-d₃, α-Hydroxybutyrate-d₃, DL-2-Hydroxybutyric Acid-d₃
MF: C₄H₄D₃O₃ • Na
FW: 129.1
Chemical Purity: ≥98% (2-Hydroxybutyrate)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₃); ≤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

2-Hydroxybutyrate-d₃ (sodium salt) is intended for use as an internal standard for the quantification of 2-hydroxybutyrate 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).

2-Hydroxybutyrate-d₃ (sodium salt) is supplied as a solid. A stock solution may be made by dissolving the 2-hydroxybutyrate-d₃ (sodium salt) in the solvent of choice, which should be purged with an inert gas. 2-Hydroxybutyrate-d₃ (sodium salt) is soluble in DMSO.

Description

2-Hydroxybutyrate is an endogenous metabolite.¹ It is formed from 2-oxobutyrate by lactate dehydrogenase (LDH) as a byproduct of cysteine biosynthesis. 2-Hydroxybutyrate (500 μM) inhibits branched-chain amino acid transaminase 2 (BCAT2) in a cell-free assay and increases the NAD⁺/NADH ratio in C2C12 myoblasts. It increases soleus muscle resistance to fatigue in mice when administered at a dose of 1 mmol/kg. Plasma levels of 2-hydroxybutyrate increase with increasing insulin resistance and dysglycemia in nondiabetic patients.² Increased serum levels of 2-hydroxybutyrate are associated with increased 3-month mortality in patients with acute heart failure.³

References

1. Wadsworth, B.J., Leiwe, M., Minogue, E.A., *et al.* A 2-hydroxybutyrate-mediated feedback loop regulates muscular fatigue. *Elife* **12:RP92707**, (2024).
2. Gall, W.E., Beebe, K., Lawton, K.A., *et al.* α-Hydroxybutyrate is an early biomarker of insulin resistance and glucose intolerance in a nondiabetic population. *PLoS One* **5(5)**, e10883 (2010).
3. Stryeck, S., Gastrager, M., Degoricija, V., *et al.* Serum concentrations of citrate, tyrosine, 2- and 3-hydroxybutyrate are associated with increased 3-month mortality in acute heart failure patients. *Sci. Rep.* **9(1)**, 6743 (2019).

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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