

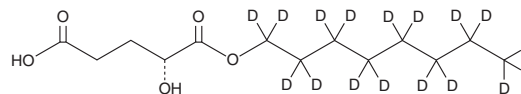
PRODUCT INFORMATION



(2R)-Octyl- α -hydroxyglutarate-d₁₇

Item No. 19694

CAS Registry No.: 2748638-78-8
Formal Name: 2R-hydroxy-pentanedioic acid, 1-octyl-d₁₇ ester
Synonyms: (2R)-Octyl-2-HG-d₁₇
MF: C₁₃H₇D₁₇O₅
FW: 277.4
Chemical Purity: ≥95% ((2R)-Octyl- α -hydroxyglutarate)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₁₇); ≤1% d₀
Supplied as: A crystalline 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

(2R)-Octyl- α -hydroxyglutarate-d₁₇ is intended for use as an internal standard for the quantification of (2R)-octyl- α -hydroxyglutarate (Item No. 16366) 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).

(2R)-Octyl- α -hydroxyglutarate-d₁₇ is supplied as a crystalline solid. A stock solution may be made by dissolving the (2R)-octyl- α -hydroxyglutarate-d₁₇ in the solvent of choice, which should be purged with an inert gas. (2R)-Octyl- α -hydroxyglutarate-d₁₇ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (2R)-octyl- α -hydroxyglutarate-d₁₇ in ethanol is approximately 20 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Description

α -Hydroxyglutaric acid (2-HG; Item No. 16374) is normally metabolized to 2-oxoglutarate by D- and L-2-hydroxyglutarate dehydrogenases. Mutations in these enzymes cause 2-hydroxyglutaric aciduria, a neurometabolic disorder.¹⁻³ Recent studies have found that mutations in isocitrate dehydrogenase 1 (IDH1) and IDH2, typically associated with certain cancers, can cause these enzymes to convert isocitrate to 2-HG, rather than α -ketoglutarate.^{4,5} 2-HG is structurally similar to α -ketoglutarate and competitively inhibits α -ketoglutarate-dependent dioxygenases, including lysine demethylases and DNA hydroxylases.⁵⁻⁷ (2R)-Octyl- α -hydroxyglutarate is a cell-permeable derivative of the D-isomer of 2-HG. It has been used to examine the contribution of D-2-HG to the oxidative mitochondrial processes of IDH1-mutated cancer cells.⁸

References

1. Rzem, R., Veiga-da-Cunha, M., Noël, G., *et al. Proc. Natl. Acad. Sci. USA* **101(48)**, 16849-16854 (2004).
2. Struys, E.A., Verhoeven, N.M., Roos, B., *et al. Clin. Chem.* **49(7)**, 1133-1138 (2003).
3. Struys, E.A., Salomons, G.S., Achouri, Y., *et al. Am. J. Hum. Genet.* **76**, 358-360 (2005).
4. Ward, P., Patel, J., Wise, D.R., *et al. Cancer Cell* **17**, 225-234 (2010).
5. Yang, H., Ye, D., Guan, K.-L., *et al. Clin. Cancer Res.* **18(20)**, 5562-5571 (2012).
6. Xu, W., Yang, H., Liu, Y., *et al. Cancer Cell* **19**, 17-30 (2011).
7. Chowdhury, R., Yeoh, K.K., Tian, Y.-M., *et al. EMBO Rep.* **12(5)**, 463-469 (2011).
8. Reitman, Z.J., Duncan, C.G., Poteet, E., *et al. J. Biol. Chem.* **289(34)**, 23318-23328 (2014).

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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 08/17/2022

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