

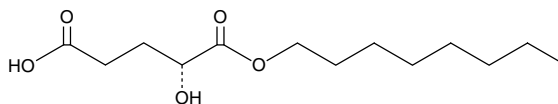
Product Information



(2R)-Octyl- α -hydroxyglutarate

Item No. 16366

CAS Registry No.: 1391194-67-4
Formal Name: 2R-hydroxy-pentanedioic acid, 1-octyl ester
Synonym: (2R)-Octyl-2-HG
MF: C₁₃H₂₄O₅
FW: 260.3
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that (2R)-octyl- α -hydroxyglutarate be stored as supplied at -20°C. It should be stable for at least two years.

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

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 (2R)-octyl- α -hydroxyglutarate can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (2R)-octyl- α -hydroxyglutarate in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

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-2HG 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).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/16366

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. 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

Cayman Chemical Company makes **no warranty or guarantee** of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications at the time of delivery.

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have any obligation or liability, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's exclusive remedy and Cayman's sole liability hereunder shall be limited to a refund of the purchase price, or at Cayman's option, the replacement, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our Warranty and Limitation of Remedy located on our website and in our catalog.

Copyright Cayman Chemical Company, 04/22/2015

Cayman Chemical

Mailing address

1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone

(800) 364-9897
(734) 971-3335

Fax

(734) 971-3640

E-Mail

custserv@caymanchem.com

Web

www.caymanchem.com