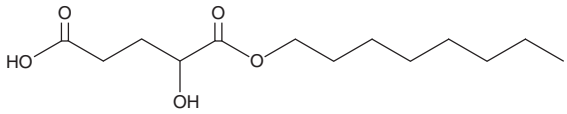
PRODUCT INFORMATION

Octyl-α-hydroxyglutarate

Item No. 16365

CAS:	2097068-39-6
Formal Name:	2-hydroxy-pentanedioic acid, 1-octyl ester
Synonym:	Octyl-2-HG
MF:	$C_{13}H_{24}O_5$
FW:	260.3
Purity:	≥95%
Supplied as:	A crystalline 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

Octyl-2-HG is supplied as a crystalline solid. A stock solution may be made by dissolving the octyl-2-HG in the solvent of choice. Octyl-2-HG is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of octyl-2-HG 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 octyl-2-HG can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of octyl-2-HG in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

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] Octyl-2-HG is a cell-permeable derivative of 2-HG.

References

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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).
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6. Xu, W., Yang, H., Liu, Y., *et al. Cancer Cell* **19**, 17-30 (2011).
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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