



# SZABO SCANDIC

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## Produktinformation



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Laborgeräte & Service

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- Expressversand

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# PRODUCT INFORMATION



## (2R)-Octyl- $\alpha$ -hydroxyglutarate-d<sub>17</sub>

Item No. 19694

**Formal Name:** 2R-hydroxy-pentanedioic acid,  
1-octyl-d<sub>17</sub> ester  
**Synonym:** (2R)-Octyl-2-HG-d<sub>17</sub>  
**MF:** C<sub>13</sub>H<sub>7</sub>D<sub>17</sub>O<sub>5</sub>  
**FW:** 277.4

**Chemical Purity:** ≥95% (2R)-Octyl- $\alpha$ -hydroxyglutarate

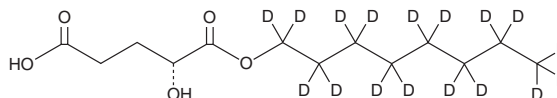
**Deuterium**

**Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>17</sub>); ≤1% d<sub>0</sub>

**Supplied as:** A crystalline solid

**Storage:** -20°C

**Stability:** As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



### Laboratory Procedures

(2R)-Octyl- $\alpha$ -hydroxyglutarate-d<sub>17</sub> contains 17 deuteriums located on the octyl group. It is intended for use as an internal standard for the quantification of (2R)-Octyl- $\alpha$ -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- $\alpha$ -hydroxyglutarate-d<sub>17</sub> is supplied as a crystalline solid. A stock solution may be made by dissolving the (2R)-Octyl- $\alpha$ -hydroxyglutarate-d<sub>17</sub> in the solvent of choice. (2R)-Octyl- $\alpha$ -hydroxyglutarate-d<sub>17</sub> 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- $\alpha$ -hydroxyglutarate-d<sub>17</sub> in ethanol is approximately 20 mg/ml and approximately 10 mg/ml in DMSO and DMF.

### Description

$\alpha$ -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.<sup>1-3</sup> 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  $\alpha$ -ketoglutarate.<sup>4-5</sup> 2-HG is structurally similar to  $\alpha$ -ketoglutarate and competitively inhibits  $\alpha$ -ketoglutarate-dependent dioxygenases, including lysine demethylases and DNA hydroxylases.<sup>5-7</sup> (2R)-Octyl- $\alpha$ -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.<sup>8</sup>

### 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).

#### 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

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