

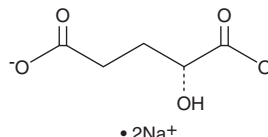
PRODUCT INFORMATION



D- α -Hydroxyglutaric Acid (sodium salt)

Item No. 11605

CAS Registry No.: 103404-90-6
Formal Name: 2R-hydroxy-pentanedioic acid, disodium salt
Synonyms: D-2-HG, D-2-Hydroxyglutaric Acid, DGA, R-2HG
MF: C₅H₆O₅ • 2Na
FW: 192.1
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

D- α -hydroxyglutaric acid (D-2-HG) (sodium salt) is supplied as a crystalline solid. Aqueous solutions of D-2-HG (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of D-2-HG (sodium salt) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

D-2-HG is an α -hydroxy acid.¹ It decreases the oxygen consumption rate (OCR) and ratio of ATP to ADP in U87 glioma cells when used at a concentration of 800 μ M. D-2-HG (100 μ M) increases the levels of thiobarbituric acid reactive substances (TBARS) in isolated rat cerebral cortex homogenates.² Urinary levels of D-2-HG are increased in D-2-hydroxyglutaric aciduria, a neurometabolic disease characterized by epilepsy, muscle hypotonia, and delays in psychomotor development.^{3,4} D-2-HG is structurally similar to α -ketoglutarate, the product of wild-type isocitrate dehydrogenases, and competitively inhibits α -ketoglutarate-dependent dioxygenases, including histone lysine demethylases and DNA hydroxylases.⁵⁻⁷

References

1. Fu, X., Chin, R.M., Vergnes, L., *et al.* 2-Hydroxyglutarate inhibits ATP synthase and mTOR signaling. *Cell Metab.* **22**(3), 508-515 (2015).
2. Latini, A., Scussiato, K., Rosa, R.B., *et al.* D-2-hydroxyglutaric acid induces oxidative stress in cerebral cortex of young rats. *Eur. J. Neurosci.* **17**(10), 2017-2022 (2003).
3. Kranendijk, M., Struys, E.A., Van Schaftingen, E., *et al.* IDH2 Mutations in Patients with D-2-Hydroxyglutaric Aciduria. *Science* **330**(6002), 336 (2014).
4. Struys, E.A., Salomons, G.S., Achouri, Y., *et al.* Mutations in the D-2-hydroxyglutarate dehydrogenase gene cause D-2-hydroxyglutaric aciduria. *Am. J. Hum. Genet.* **76**(2), 358-360 (2005).
5. Yang, H., Ye, D., Guan, K.L., *et al.* IDH1 and IDH2 mutations in tumorigenesis: Mechanistic insights and clinical perspectives. *Clin. Cancer Res.* **18**(20), 5562-5571 (2012).
6. Xu, W., Yang, H., Liu, Y., *et al.* Oncometabolite 2-hydroxyglutarate is a competitive inhibitor of α -ketoglutarate-dependent dioxygenases. *Cancer Cell* **19**(1), 17-30 (2011).
7. Chowdhury, R., Yeoh, K.K., Tian, Y.M., *et al.* The oncometabolite 2-hydroxyglutarate inhibits histone lysine demethylases. *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.

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