

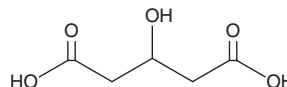
# PRODUCT INFORMATION



## 3-Hydroxyglutaric Acid

Item No. 16334

**CAS Registry No.:** 638-18-6  
**Formal Name:** 3-hydroxy-pentanedioic acid  
**Synonyms:** 2,4-Dideoxypentanic Acid, 3-HG,  
3-Hydroxyglutarate,  $\beta$ -Hydroxyglutaric Acid,  
3-Hydroxypentanedioic Acid, 3-OH-GA  
**MF:** C<sub>5</sub>H<sub>8</sub>O<sub>5</sub>  
**FW:** 148.1  
**Purity:**  $\geq$ 95%  
**Stability:**  $\geq$ 2 years at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

For long term storage, we suggest that 3-hydroxyglutaric acid be stored as supplied at -20°C. It should be stable for at least two years.

3-Hydroxyglutaric acid is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-hydroxyglutaric acid in the solvent of choice. 3-Hydroxyglutaric acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 3-hydroxyglutaric acid in these solvents is approximately 30 mg/ml.

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 3-hydroxyglutaric acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-hydroxyglutaric acid in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Glutaryl-CoA dehydrogenase (GCDH) is a mitochondrial matrix protein that catalyzes the oxidative decarboxylation of glutaryl-CoA to crotonyl-CoA and carbon dioxide in the catabolic pathways of lysine, hydroxylysine, and tryptophan metabolism.<sup>1</sup> 3-Hydroxyglutaric acid is one of several metabolites produced when insufficient levels of GCDH are available.<sup>1,2</sup> Urinary levels of 3-hydroxyglutaric acid are elevated during glutaric acidemia type 1, an autosomal recessive GCDH deficiency disorder that can lead to neurodegeneration if left untreated.<sup>1,2</sup> 3-Hydroxyglutaric acid is used as a biomarker of GCDH deficiency.<sup>1,2</sup>

### References

1. Fang, N. and Casida, J.E. Anticancer action of cubé insecticide: Correlation for rotenoid constituents between inhibition of NADH: Ubiquinone oxidoreductase and induced ornithine decarboxylase activities. *Proc. Natl. Acad. Sci. USA* **95**, 3380-3384 (1998).
2. Sauer, S.W., Okun, J.G., Schwab, M.A., *et al.* Bioenergetics in glutaryl-coenzyme a dehydrogenase deficiency. A role for glutaryl-coenzyme A. *J. Biol. Chem.* **290(23)**, 21830-21836 (2005).

#### 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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