

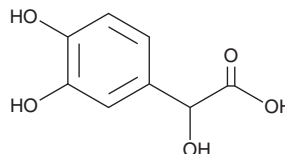
# PRODUCT INFORMATION



## 3,4-Dihydroxymandelic Acid

Item No. 36369

**CAS Registry No.:** 775-01-9  
**Formal Name:**  $\alpha$ ,3,4-trihydroxy-benzeneacetic acid  
**Synonyms:** DHMA, DOMA  
**MF:** C<sub>8</sub>H<sub>8</sub>O<sub>5</sub>  
**FW:** 184.1  
**Purity:** ≥95%  
**Supplied as:** A 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

3,4-Dihydroxymandelic acid is supplied as a solid. A stock solution may be made by dissolving the 3,4-dihydroxymandelic acid in the solvent of choice, which should be purged with an inert gas. 3,4-Dihydroxymandelic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3,4-dihydroxymandelic acid in ethanol and DMF is approximately 30 mg/ml and approximately 10 mg/ml in DMSO.

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 3,4-dihydroxymandelic acid can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 3,4-dihydroxymandelic 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

3,4-Dihydroxymandelic acid is an active metabolite of the endogenous catecholamine (-)-norepinephrine (Item No. 16673).<sup>1</sup> It is formed from (-)-norepinephrine *via* the intermediate norepinephrine aldehyde by aldehyde dehydrogenase. 3,4-Dihydroxymandelic acid scavenges superoxide radicals (IC<sub>50</sub> = 130 nM) and reduces lipid peroxidation in cell-free assays.<sup>2</sup> 3,4-Dihydroxymandelic acid is also formed from norepinephrine by gut microbiota, such as *E. coli*.<sup>3</sup> It is a chemoattractant for enterohemorrhagic *E. coli* that induces the expression of virulence genes when used at a concentration of 50 μM and increases the attachment of enterohemorrhagic *E. coli* to HeLa cells *in vitro*.

### References

1. Rang, H.P., Dale, M.M., Ritter, J.M., *et al.* Rang and Dale's Pharmacology. 7<sup>th</sup> ed., Elsevier Health Sciences UK (2012).
2. Ley, J.P., Engelhart, K., Bernhardt, J., *et al.* 3,4-Dihydroxymandelic acid, a noradrenalin metabolite with powerful antioxidative potential. *J. Agric. Food Chem.* **50(21)**, 5897-5902 (2002).
3. Sule, N., Pasupuleti, S., Kohli, N., *et al.* The norepinephrine metabolite 3,4-dihydroxymandelic acid is produced by the commensal microbiota and promotes chemotaxis and virulence gene expression in enterohemorrhagic *Escherichia coli*. *Infect. Immun.* **85(10)**, e00431-17 (2017).

#### 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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#### 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