

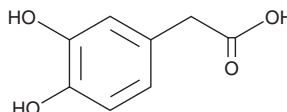
PRODUCT INFORMATION



3,4-Dihydroxyphenylacetic Acid

Item No. 24912

CAS Registry No.: 102-32-9
Formal Name: 3,4-dihydroxy-benzeneacetic acid
Synonyms: DOPAC, NSC 73191
MF: C₈H₈O₄
FW: 168.1
Purity: ≥98%
UV/Vis.: λ_{max}: 280 nm
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

3,4-Dihydroxyphenylacetic acid (DOPAC) is supplied as a crystalline solid. A stock solution may be made by dissolving the DOPAC in the solvent of choice, which should be purged with an inert gas. DOPAC is soluble in the organic solvent dimethyl formamide at a concentration of approximately 1 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 DOPAC can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of DOPAC in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

DOPAC is a metabolite of dopamine (Item No. 21992) formed through deamination by monoamine oxidase (MAO).¹ DOPAC is further metabolized by catechol-O-methyltransferase (COMT) to form homovanillic acid, and DOPAC levels are increased 5- to 6-fold compared to wild-type in the nucleus accumbens, striatum, and prefrontal cortex of COMT knockout mice. DOPAC oxidation is catalyzed by α-synuclein and oxidized DOPAC binds to monomeric α-synuclein preventing fibrillation.² *In vivo*, foot shock stress increases DOPAC levels relative to control by approximately 45% in the prefrontal cortex and by 15% in the olfactory tubercles and ventral tegmental area (VTA) in rats.³

References

1. Käenmaki, M., Tammimäki, A., Myöhänen, T., *et al.* Quantitative role of COMT in dopamine clearance in the prefrontal cortex of freely moving mice. *J. Neurochem.* **114(6)**, 1745-1755 (2010).
2. Zhou, W., Gallagher, A., Hong, D.P., *et al.* At low concentrations, 3,4-dihydroxyphenylacetic acid (DOPAC) binds non-covalently to α-synuclein and prevents its fibrillation. *J. Mol. Biol.* **388(3)**, 597-610 (2009).
3. Deutch, A.Y., Tam, S.Y., and Roth, R.H. Footshock and conditioned stress increase 3,4-dihydroxyphenylacetic acid (DOPAC) in the ventral tegmental area but not substantia nigra. *Brain Res.* **333(1)**, 143-146 (1985).

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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