

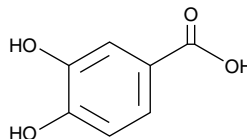
Product Information



Protocatechuic Acid

Item No. 14916

CAS Registry No.:	99-50-3
Formal Name:	3,4-dihydroxy-benzoic acid
Synonyms:	NSC 16631, PCA
MF:	C ₇ H ₆ O ₄
FW:	154.1
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ _{max} : 220, 260, 296 nm



Laboratory Procedures

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

PCA is supplied as a crystalline solid. A stock solution may be made by dissolving the PCA in the solvent of choice. PCA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of PCA in ethanol and DMSO is approximately 16.7 mg/ml and approximately 20 mg/ml in DMF.

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 PCA can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of PCA in PBS, pH 7.2, is approximately 0.14 mg/ml. We do not recommend storing the aqueous solution for more than one day.

PCA is a dihydroxybenzoic acid phenolic compound found in many edible and medicinal plants. It is a major metabolite of antioxidant polyphenols found in green tea and demonstrates free radical scavenging capability in a 1,1-diphenyl-2-picrylhydrazyl radical scavenging activity assay (IC₅₀ = 16.3 μM).^{1,2} It is thought to possess anti-inflammatory, antihyperglycemic, neuroprotective, and anticancer activities. Dietary administration of PCA dose dependently inhibits *in vitro* chemical carcinogenesis and exerts pro-apoptotic and anti-proliferative effects in different tissues.³ In studies of tumor cell migration and invasion using mouse melanoma B16/F10 cells, PCA at 0.1-2 mM down-regulated the Ras/Akt/NF-κB pathway by targeting RhoB activation, leading to a reduction of MMP-mediated activity.⁴

References

1. Li, X., Lin, J., Han, W., *et al.* Antioxidant ability and mechanism of rhizoma *Atractylodes macrocephala*. *Molecules* **17**(11), 13457-13472 (2012).
2. Al-Musayeib, N., Perveen, S., Fatima, I., *et al.* Antioxidant, anti-glycation and anti-inflammatory activities of phenolic constituents from *Cordia sinensis*. *Molecules* **16**(12), 10214-10226 (2011).
3. Tanaka, T., Kojima, T., Suzui, M., *et al.* Chemoprevention of colon carcinogenesis by the natural product of a simple phenolic compound protocatechuic acid: Suppressing effects on tumor development and biomarkers expression of colon tumorigenesis. *Cancer Res.* **53**(17), 3908-3913 (1993).
4. Lin, H.-H., Chen, J.-H., Chou, F.-P., *et al.* Protocatechuic acid inhibits cancer cell metastasis involving the down-regulation of Ras/Akt/NF-κB pathway and MMP-2 production by targeting RhoB activation. *Br. J. Pharmacol.* **162**(1), 237-254 (2011).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/14916

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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