

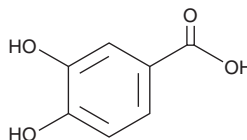
PRODUCT INFORMATION



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%
UV/Vis.:	λ _{max} : 220, 260, 296 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

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

Description

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-Musayeb, 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).

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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