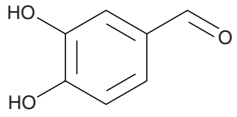
PRODUCT INFORMATION

3,4-Dihydroxybenzaldehyde

Item No. 27547

CAS Registry No.:	139-85-5
Formal Name:	3,4-dihydroxy-benzaldehyde
Synonyms:	NSC 22961, Protocatechualdehyde, Protocatechuic aldehyde
MF:	$C_7H_6O_3$
FW:	138.1
Purity:	≥98%
UV/Vis.:	λ_{max}: 234, 280, 315 nm
Supplied as:	A 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

3,4-Dihydroxybenzaldehyde is supplied as a solid. A stock solution may be made by dissolving the 3,4-dihydroxybenzaldehyde in the solvent of choice, which should be purged with an inert gas. 3,4-Dihydroxybenzaldehyde is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3,4-dihydroxybenzaldehyde in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

3,4-Dihydroxybenzaldehyde is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 3,4-dihydroxybenzaldehyde should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 3,4-Dihydroxybenzaldehyde has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

3,4-Dihydroxybenzaldehyde is a polyphenol that has been found in *S. miltiorrhiza* and has diverse biological activities, including antibacterial, antioxidative, and anticancer properties.[1-4] It is active against methicillin-resistant *S. aureus* (MRSA) when used at a concentration of 0.01 µg/ml.[2] It prevents hexavalent chromium-induced formation of reactive oxygen species (ROS) and reactive nitrogen species (RNS) in a concentration-dependent manner and increases glutathione (GSH) levels in isolated human erythrocytes.[1] 3,4-Dihydroxybenzaldehyde selectively inhibits human DNA topoisomerase II (IC_{50} = 150 µM) over human topoisomerase I and a variety of mammalian polymerases (IC_{50}s = >200 µM).[3] It inhibits proliferation of HT-29 cells when used at a concentration of 362 µM but not HCT116 cells at a concentration of 100 µM.[3,4]

References

1. Husain, N. and Mahmood, R. *Toxicol. In Vitro* **50,** 293-304 (2018).
2. Rempe, C.S., Burris, K.P., Woo, H.L., *et al. PLoS One* **10(5),** e0123925 (2015).
3. Kuriyama, I., Nakajima, Y., Nishida, H., *et al. Mol. Med. Rep.* **8(2),** 535-542 (2013).
4. Zhong, S., Li, Y.-G., Ji, D.-F., *et al. Molecules* **21(7),** 934 (2016).

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