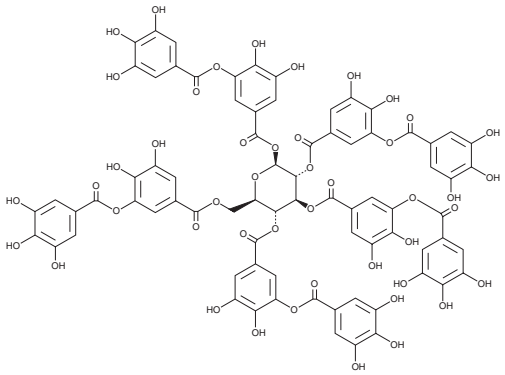
PRODUCT INFORMATION

Tannic Acid

Item No. 21421



CAS Registry No.:	1401-55-4
Formal Name:	1,2,3,4,6-pentakis[3,4-dihydroxy-5-[(3,4,5-trihydroxybenzoyl)oxy]benzoate]β-D-glucopyranose
Synonym:	Gallotannin
MF:	$C_{76}H_{52}O_{46}$
FW:	1,701.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 219, 278 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

Tannic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the tannic acid in the solvent of choice, which should be purged with an inert gas. Tannic acid is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of tannic acid in these solvents is approximately 10 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 tannic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of tannic acid in PBS, pH 7.2, is approximately 0.3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tannic acid is a polyphenol of gallic acid (Item No. 11846) that has been found in *C. sinensis* and has diverse biological activities.[1-4] Tannic acid (1 µM) inhibits the intracellular production of reactive oxygen species (ROS) and DNA damage induced by phorbol 12-myristate 13-acetate (TPA; Item No. 10008014) in human polymorphonuclear neutrophils (PMNs).[1] It also decreases TPA-induced nitric oxide secretion from primary rat hepatocytes when used at a concentration of 0.5 mM.[2] Tannic acid inhibits hepatitis C virus (HCV) entry into Huh7.5 human hepatoma cells (IC_{50} = 5.8 µM) and inhibits the proliferation of MDA-MB-231 and MCF-7 human breast cancer cells (IC_{50}s = 2.5 and 4 µM, respectively).[3,4] It increases superoxide dismutase 1 (SOD1) protein levels and decreases malondialdehyde (MDA) activity in the ischemic brain tissue in a rat model of middle cerebral artery occlusion (MCAO) when administered at a dose of 10 mg/kg.[5] Tannic acid has also been used with lipids in the generation of polyphenolic nanoparticle platforms (PARCELs) for the delivery of mRNA *in vivo*.[6] PARCELs containing tannic acid and encapsulating mRNA encoding luciferase increase luminescence in the livers of mice without increasing the blood levels of alkaline phosphatase (ALP), alanine transaminase, aspartate aminotransferase, urea nitrogen, or creatine.

References

1. Zielińska-Przyjemska, M., Ignatowicz, E., Krajka-Kuźniak, V., *et al. Food Chem. Toxicol.* **84**, 37-46 (2015).
2. Srivastava, R.C., Husain, M.M., Hasam, S.K., *et al. Cancer Lett.* **153(1-2)**, 1-5 (2000).
3. Liu, S., Chen, R., and Hagedorn, C.H. *PLoS One* **10(7)**, e0131358 (2015).
4. Nie, F., Liang, Y., Jiang, B., *et al. Tumour Biol.* **37(2)**, 2137-2143 (2016).
5. Sen, H.M., Ozkan, A., Guven, M., *et al. Inflammation* **38(4)**, 1624-1630 (2015).
6. Ma, Y., Tiwade, P.B., VanKeulen-Miller, R., *et al. Nano Lett.* **24(20)**, 6092-6101 (2024).

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