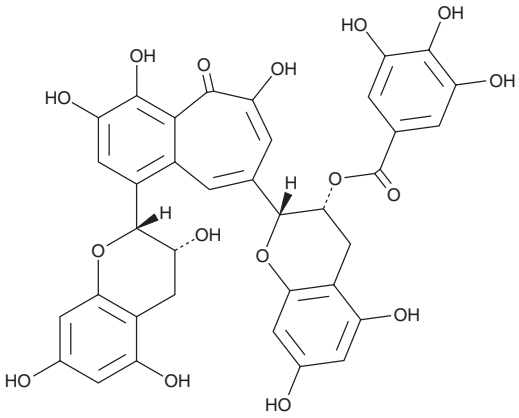
PRODUCT INFORMATION

Theaflavin-3-gallate

Item No. 31510

CAS Registry No.:	30462-34-1
Formal Name:	3,4,5-trihydroxy-benzoic acid, (2R,3R)-2-[1-[(2R,3R)-3,4-dihydro-3,5,7-trihydroxy-2H-1-benzopyran-2-yl]-3,4,6-trihydroxy-5-oxo-5H-benzocyclohepten-8-yl]-3,4-dihydro-5,7-dihydroxy-2H-1-benzopyran-3-yl ester
Synonyms:	TF_{2A}, Theaflavin Monogallate A
MF:	$C_{36}H_{28}O_{16}$
FW:	716.6
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Camellia sinensis*



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

Laboratory Procedures

Theaflavin-3-gallate is supplied as a crystalline solid. A stock solution may be made by dissolving the theaflavin-3-gallate in the solvent of choice, which should be purged with an inert gas. Theaflavin-3-gallate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of theaflavin-3-gallate in ethanol and DMSO is approximately 10 mg/ml and approximately 25 mg/ml in DMF.

Theaflavin-3-gallate is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, theaflavin-3-gallate should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Theaflavin-3-gallate has a solubility of approximately 0.1 mg/ml in a 1:6 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Theaflavin-3-gallate is a polyphenolic flavonoid that has been found in black tea (*C. sinensis*) and has diverse biological activities.[1-3] It scavenges singlet oxygen and hydrogen peroxide, as well as superoxide and hydroxide radicals (IC_{50}s = 0.86, 0.45, 21.7, and 32.49 µM, respectively), in cell-free assays.[1] Theaflavin-3-gallate is cytotoxic to, and induces apoptosis in, OVCAR-3 and A2780/CP70 ovarian cancer, but not non-cancerous IOSE 364 ovarian epithelial, cells when used at concentrations of 20 and 40 µM.[2] It reduces oxazolone-induced ear edema and serum and ear levels of TNF-α, IFN-γ, and IL-12 in an oxazolone-sensitized mouse model of delayed-type hypersensitivity when administered at a dose of 50 mg/kg.[3]

References

1. Wu, Y.-y., Li, W., Xu, Y., *et al.* Evaluation of the antioxidant effects of four main theaflavin derivatives through chemiluminescence and DNA damage analyses. *J. Zhejiang. Univ. Sci. B.* **12(9)**, 744-751 (2011).
2. Gao, Y., Rankin, G.O., Tu, Y., *et al.* Inhibitory effects of the four main theaflavin derivatives found in black tea on ovarian cancer cells. *Anticancer Res.* **36(2)**, 643-651 (2016).
3. Yoshino, K., Yamazaki, K., and Sano, M. Preventive effects of black tea theaflavins against mouse type IV allergy. *J. Sci. Food Agric.* **90(12)**, 1983-1987 (2010).

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