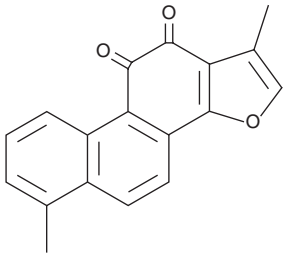
PRODUCT INFORMATION

Tanshinone I

Item No. 26852

CAS Registry No.:	568-73-0
Formal Name:	1,6-dimethyl-phenanthro[1,2-b]furan-10,11-dione
Synonym:	Tanshinone A
MF:	$C_{18}H_{12}O_3$
FW:	276.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 245, 420 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Salviae Miltiorrhizae Radix et Rhizoma*



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

Laboratory Procedures

Tanshinone I is supplied as a crystalline solid. A stock solution may be made by dissolving the tanshinone I in the solvent of choice. Tanshinone I is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of tanshinone I in these solvents is approximately 0.1, 0.3, and 1 mg/ml, respectively.

Description

Tanshinone I is a diterpene that has been found in *S. miltiorrhiza* and has diverse biological activities, including anticancer, antidiabetic, and neuroprotective properties.[1-4] It inhibits proliferation in a variety of cancer cell lines, including KB/VCR, MCF-7/ADR, and K562/A02 multidrug-resistance cell lines.[2] It inhibits topoisomerase I- and topoisomerase II-mediated supercoiled DNA relaxation activity when used at concentrations of 200 and 25 µM, respectively. Tanshinone I also inhibits proliferation of H358-IR and H157-IR radioresistant lung cancer cells (IC_{50}s = 10.87 and 6.1 µM, respectively) and sensitizes them to radiation.[3] It reduces plasma levels of total cholesterol, triglycerides, LDL, and nonesterified fatty acids and decreases blood glucose levels in a rat model of type 2 diabetes induced by streptozotocin (Item No. 13104) and a high-fat diet.[5] Tanshinone I reduces the LPS-induced expression of TNF-α, IL-1β, and IL-6 in microglia *in vitro*.[6] It is neuroprotective in a mouse model of Parkinson's disease induced by MPTP, preventing dopaminergic cell death in the striatum and improving motor function when administered at a dose of 10 mg/kg per day for two weeks.

References

1. Yang, L., Ding, G., Lin, H., *et al.* Transcriptome analysis of medicinal plant *Salvia miltiorrhiza* and identification of genes related to tanshinone biosynthesis. *PLoS One* **8(11)**, e80464 (2013).
2. Tian, Q.-T., Ding, C.-Y., Song, S.-S., *et al.* New tanshinone I derivatives S222 and S439 similarly inhibit topoisomerase I/II but reveal different p53-dependency in inducing G2/M arrest and apoptosis. *Biochem. Pharmacol.* **156**, 255-264 (2018).
3. Yan, Y., Su, W., Zeng, S., *et al.* Effect and mechanism of tanshinone I on the radiosensitivity of lung cancer cells. *Mol. Pharm.* **15(11)**, 4843-4853 (2018).
4. Wang, S., Jing, H., Yang, H., *et al.* Tanshinone I selectively suppresses pro-inflammatory genes expression in activated microglia and prevents nigrostriatal dopaminergic neurodegeneration in a mouse model of Parkinson's disease. *J. Ethnopharmacol.* **164**, 247-255 (2015).
5. Wei, Y., Gao, J., Qin, L., *et al.* Tanshinone I alleviates insulin resistance in type 2 diabetes mellitus rats through IRS-1 pathway. *Biomed. Pharmacother.* **93**, 352-356 (2017).

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