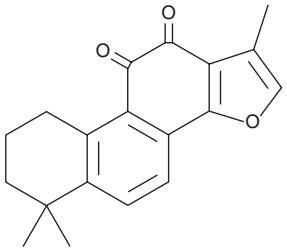
PRODUCT INFORMATION

Tanshinone IIA

Item No. 14323

CAS Registry No.:	568-72-9
Formal Name:	6,7,8,9-tetrahydro-1,6,6-trimethyl-phenanthro[1,2-b]furan-10,11-dione
Synonyms:	NSC 686518, NSC 686519, TSA
MF:	$C_{19}H_{18}O_3$
FW:	294.3
Purity:	≥97%
UV/Vis.:	λ_{max}: 223, 269, 454 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

Tanshinone IIA (TSA) is supplied as a crystalline solid. A stock solution may be made by dissolving the TSA in the solvent of choice, which should be purged with an inert gas. TSA is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of TSA in these solvents is approximately 0.3 and 2 mg/ml, respectively.

Description

TSA is a major lipophilic component of extracts from the root of *S. miltiorrhiza*, used widely in Chinese herbal medicine. It has anti-inflammatory activity, inhibiting production of TNF-α, IL-1β, IL-6, NO, INFγ, and expression of iNOS, and IL-12.[1,2] It blocks human aortic smooth muscle cell migration, inhibits MMP-9 activity, and interferes with PI3K/Akt and ERK1/2 signaling pathways.[3] It is cytotoxic to various cancer cells including A549 lung cancer cells and leukemia cells.[4,5] Reduction of TSA by NAD(P)H:quinone oxidoreductase (NQO1) generates an unstable intermediate resulting in reactive oxygenase species-mediated apoptotic cell death.[6]

References

1. Jang, S.-I., Jeong, S.-I., Kim, K.-J., *et al.* Tanshinone IIA from *Salvia miltiorrhiza* inhibits inducible nitric oxide synthase expression and production of TNF-α, IL-1β and IL-6 in activated RAW 264.7 cells. *Planta Med.* **69(11)**, 1057-1059 (2003).
2. Kang, B.Y., Chung, S.W., Kim, S.H., *et al.* Inhibition of interleukin-12 and interferon-γ production in immune cells by tanshinones from *Salvia miltiorrhiza*. *Immunopharmacology* **49(3)**, 355-361 (2000).
3. Jin, U.-H., Suh, S.-J., Chang, H.W., *et al.* Tanshinone IIA from *Salvia miltiorrhiza* BUNGE inhibits human aortic smooth muscle cell migration and MMP-9 activity through AKT signaling pathway. *J. Cell Biochem.* **104(1)**, 15-26 (2008).
4. Chiu, T.-L. and Su, C.-C. Tanshinone IIA induces apoptosis in human lung cancer A549 cells through the induction of reactive oxygen species and decreasing the mitochondrial membrane potential. *Int. J. Mol. Med.* **25(2)**, 231-236 (2010).
5. Sung, H.J., Choi, S.M., Yoon, Y., *et al.* Tanshinone IIA, an ingredient of *Salvia miltiorrhiza* BUNGE, induces apoptosis in human leukemia cell lines through the activation of caspase-3. *Exp. Mol. Med.* **31(4)**, 174-178 (1999).
6. Liu, F., Yu, G., Wang, G., *et al.* An NQO1-initiated and p53-independent apoptotic pathway determines the anti-tumor effect of tanshinone IIA against non-small cell lung cancer. *PLoS One* **7(7)**, 42138 (2012).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM