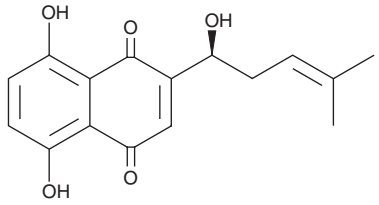
PRODUCT INFORMATION

Alkannin

Item No. 25058

CAS Registry No.:	517-88-4
Formal Name:	5,8-dihydroxy-2-[(1S)-1-hydroxy-4-methyl-3-penten-1-yl]-1,4-naphthalenedione
Synonyms:	(–)-Alkannin, NSC 94524
MF:	$C_{16}H_{16}O_5$
FW:	288.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 215, 250, 279, 516, 555 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Arnebia sinensis*



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

Laboratory Procedures

Alkannin is supplied as a crystalline solid. A stock solution may be made by dissolving the alkannin in the solvent of choice. Alkannin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of alkannin in ethanol is approximately 5 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Alkannin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, alkannin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Alkannin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Alkannin is a naphthoquinone and enantiomer of shikonin (Item No. 14751) that has been found in *A. tinctoria* and has diverse biological activities.[1-5] It inhibits tumor-specific pyruvate kinase M2 (PKM2; IC_{50} = 0.3 µM) with 20- and 10-fold selectivity over PKM1 and pyruvate kinase L (PKL), respectively.[1] Alkannin inhibits proliferation of HCT116 and SW480 colorectal cancer cells with IC_{50} values of 2.38 and 4.53 µM, respectively.[2] It halts the cell cycle at the G_1 phase and induces apoptosis in HCT116 cells when used at a concentration of 3 µM. Alkannin (1 µM) increases levels of Hsp70 in untreated and UVB-irradiated HaCaT cells as well as inhibits UVB-induced DNA fragmentation and caspase-3 activity in HaCaT cells.[3] It is active against methicillin-sensitive and -resistant *S. aureus* (MICs = 6.25 µg/ml) as well as vancomycin-sensitive and -resistant *E. faecalis* (MICs = 50 and 25 µg/ml, respectively).[4] Alkannin scavenges 2,2-diphenyl-1-picrylhydrazyl (DPPH; Item No. 14805) radicals in a cell-free assay (EC_{50} = 22 ppm).[5]

References

1. Chen, J., Xie, J., Jiang, Z., *et al. Oncogene* **30(42),** 4297-4306 (2011).
2. Huu Tung, N., Du, G.-J., Wang, C.-Z., *et al. Phytother. Res.* **27(1),** 66-70 (2013).
3. Yoshihisa, Y., Hassan, M.A., Furusawa, Y., *et al. PLoS One* **7(10),** e47903 (2012).
4. Shen, C.-C., Syu, W.-J., Li, S.-Y., *et al. J. Nat. Prod.* **65(12),** 1857-1862 (2002).
5. Assimopoulou, A.N. and Papageorgiou, V.P. *Phytother. Res.* **19(2),** 141-147 (2005).

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