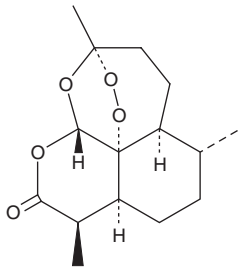
PRODUCT INFORMATION

Artemisinin

Item No. 11816

CAS Registry No.:	63968-64-9
Formal Name:	(3R,5aS,6R,8aS,9R,12S,12aR)-octahydro-3,6,9-trimethyl-3,12-epoxy-12H-pyrano[4,3-j]-1,2-benzodioxepin-10(3H)-one
Synonym:	NSC 369397
MF:	$C_{15}H_{22}O_5$
FW:	282.3
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Artemisia annua*



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

Laboratory Procedures

Artemisinin is supplied as a crystalline solid. A stock solution may be made by dissolving the artemisinin in the solvent of choice. Artemisinin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of artemisinin in these solvents is approximately 16, 10, and 20 mg/ml, respectively.

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

Description

Artemisinin is an antimalarial agent with anticancer activity.[1,2] It is an iron(II) oxide-reactive endoperoxide that generates reactive oxygen species (ROS) upon cleavage of its endoperoxide bridge.[3] It reduces the growth of various *P. falciparum* strains *in vitro* (IC_{50}s = 3.98-20.36 nM) and reduces parasitemia in mice infected with *P. falciparum* with a curative dose (CD_{50}) value of 140 mg/kg.[1,4] It also reduces *P. berghei* infection in mice (ED_{50} = 5.6 mg/kg per day).[5] Artemisinin (100-400 µM) induces cell cycle arrest in the G_0/G_1 phase and apoptosis and inhibits growth of SK-N-AS, BE(2)-C, SK-N-DZ, and SHEP1 neuroblastoma cells in a time- and concentration-dependent manner.[2] It also suppresses BE(2)-C cell colony formation in a soft agar assay and reduces tumor growth in a BE(2)-C mouse xenograft model. Formulations containing artemisinin have been used in combination therapies for the treatment of malaria.

References

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2. Zhu, S., Liu, W., Ke, X., *et al. Oncol. Rep.* **32(3)**, 1094-1100 (2014).
3. Ooko, E., Saeed, M.E.M., Kadioglu, O., *et al. Phytomedicine* **22(11)**, 1045-1054 (2015).
4. Robert, A., Benoit-Vical, F., Claparols, C., *et al. Proc. Natl. Acad. Sci. USA* **102(38)**, 13676-13680 (2005).
5. Chawira, A.N., Warhurst, D.C., Robinson, B.L., *et al. Trans. R. Soc. Trop. Med. Hyg.* **81(4)**, 554-558 (1987).

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