

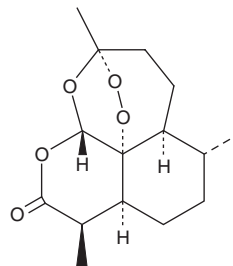
# PRODUCT INFORMATION



## 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<sub>15</sub>H<sub>22</sub>O<sub>5</sub>  
**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.<sup>1,2</sup> It is an iron(II) oxide-reactive endoperoxide that generates reactive oxygen species (ROS) upon cleavage of its endoperoxide bridge.<sup>3</sup> It reduces the growth of various *P. falciparum* strains *in vitro* (IC<sub>50</sub>s = 3.98-20.36 nM) and reduces parasitemia in mice infected with *P. falciparum* with a curative dose (CD<sub>50</sub>) value of 140 mg/kg.<sup>1,4</sup> It also reduces *P. berghei* infection in mice (ED<sub>50</sub> = 5.6 mg/kg per day).<sup>5</sup> Artemisinin (100-400 μM) induces cell cycle arrest in the G<sub>0</sub>/G<sub>1</sub> 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.<sup>2</sup> 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

1. Akoachere, M., Buchholz, K., Fischer, E., *et al.* *Antimicrob. Agents Ch.* **49(11)**, 4592-4597 (2005).
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).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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