

Dihydroartemisinin

Artemisinin and its analogs, such as dihydroartemisinin (DHA), can kill cancer cells via generating free radicals.

Dihydroartemisinin (also known as dihydroqinghaosu, arteminol or DHA) is a drug used to treat malaria. Dihydroartemisinin is the active metabolite of all artemisinin compounds (artemisinin, artesunate, artemether, etc.) and is also available as a drug in itself. It is a semi-synthetic derivative of artemisinin and is widely used as an intermediate in the preparation of other artemisinin-derived antimalarial drugs.

It is sold commercially in combination with piperazine and has been shown to be equivalent to artemether/lumefantrine.

DHA at low concentrations potentiates the cytotoxic effects of temozolomide in C6 cells partly via generating ROS, suggesting a beneficial combination for the chemotherapy of gliomas ¹⁾.

Dihydroartemisinin showed anti-glioma activity by promoting autophagy, reduced the clonogenic survival and proliferation capacity of glioma cells, and prolonged the survival of tumor bearing mice. Using the reactive oxygen species scavenger n-acetyl-cysteine these effects were in part reversible, suggesting that dihydroartemisinin partly acts through the generation of reactive oxygen species ²⁾.

¹⁾

Huang XJ, Li CT, Zhang WP, Lu YB, Fang SH, Wei EQ. Dihydroartemisinin potentiates the cytotoxic effect of temozolomide in rat C6 glioma cells. *Pharmacology*. 2008;82(1):1-9. doi: 10.1159/000125673. Epub 2008 Apr 11. PubMed PMID: 18408414.

²⁾

Lemke D, Pledl HW, Zorn M, Jugold M, Green E, Blaes J, Löw S, Hertenstein A, Ott M, Sahm F, Steffen AC, Weiler M, Winkler F, Platten M, Dong Z, Wick W. Slowing down glioblastoma progression in mice by running or the anti-malarial drug dihydroartemisinin? Induction of oxidative stress in murine glioblastoma therapy. *Oncotarget*. 2016 Jul 20. doi: 10.18632/oncotarget.10723. [Epub ahead of print] PubMed PMID: 27447560.

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