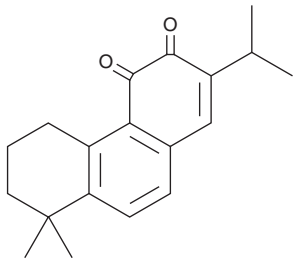
PRODUCT INFORMATION

Miltirone

Item No. 36663

CAS Registry No.:	27210-57-7
Formal Name:	5,6,7,8-tetrahydro-8,8-dimethyl-2-(1-methylethyl)-3,4-phenanthrenedione
Synonyms:	NSC 639662, Rosmariquinone
MF:	$C_{19}H_{22}O_2$
FW:	282.4
Purity:	≥95%
UV/Vis.:	λ_{max}: 258 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Synthetic



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

Laboratory Procedures

Miltirone is supplied as a solid. A stock solution may be made by dissolving the miltirone in the solvent of choice, which should be purged with an inert gas. Miltirone is soluble in chloroform and ethyl acetate.

Description

Miltirone is a tanshinone that has been found in *S. miltiorrhiza* and has diverse biological activities.[1-5] It protects lard from thermal oxidation when used at a concentration of 0.02%.[1] Miltirone is a partial agonist of the benzodiazepine receptor (IC_{50} = 0.3 µM).[2] It inhibits carboxylesterase 2 (CES2; K_i = 0.04 µM) as well as severe acute respiratory syndrome coronavirus (SARS-CoV) main protease (M^{pro}), also known as 3C-like protease ($3CL^{pro}$), and papain-like protease (PL^{pro}; IC_{50}s = 21.1 and 30 µM, respectively).[3,4] Miltirone is cytotoxic to HCT116 colon cancer cells (IC_{50} = 4.27 µM) and induces mitochondrial dysfunction and the production of reactive oxygen species (ROS) in the same cells.[5] *In vivo*, miltirone (10-60 mg/kg) increases the number of punished crossings in the four-plate test, indicating tranquilizing activity, in mice.[2]

References

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2. Lee, C.-M., Wong, H.N.C., Chui, K.-Y., *et al*. Miltirone, a central benzodiazepine receptor partial agonist from a Chinese medicinal herb *Salvia miltiorrhiza*. *Neurosci. Lett*. **127(2)**, 237-241 (1991).
3. Hatfield, J.M., Tsurkan, L.G., Hyatt, J.L., *et al*. Modulation of esterified drug metabolism by tanshinones from *Salvia miltiorrhiza* ("Danshen"). *J. Nat. Prod*. **76(1)**, 36-44 (2012).
4. Park, J.-Y., Kim, J.H., Kim, Y.M., *et al*. Tanshinones as selective and slow-binding inhibitors for SARS-CoV cysteine proteases. *Bioorg. Med. Chem*. **20(19)**, 5928-5935 (2012).
5. Wang, L., Hu, T., Shen, J., *et al*. Miltirone induced mitochondrial dysfunction and ROS-dependent apoptosis in colon cancer cells. *Life Sci*. **151**, 224-234 (2016).

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