

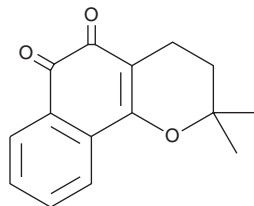
PRODUCT INFORMATION



β-Lapachone

Item No. 15021

CAS Registry No.: 4707-32-8
Formal Name: 3,4-dihydro-2,2-dimethyl-2H-naphtho[1,2-b]pyran-5,6-dione
Synonyms: ARQ 501, NSC 26326, NSC 629749, SL 11001
MF: C₁₅H₁₄O₃
FW: 242.3
Purity: ≥98%
UV/Vis.: λ_{max}: 213, 256, 263, 279 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

β-Lapachone is supplied as a crystalline solid. A stock solution may be made by dissolving the β-lapachone in the solvent of choice, which should be purged with an inert gas. β-Lapachone is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of β-lapachone in these solvents is approximately 3.3, 5, and 10 mg/ml, respectively.

β-Lapachone is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, β-lapachone should first be dissolved in DMF and then diluted with the aqueous buffer of choice. β-Lapachone has a solubility of approximately 0.50 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

β-Lapachone is a natural quinone with diverse anti-cancer and anti-inflammatory effects. It inhibits topoisomerase I at 25 μM and transglutaminase (IC₅₀ = 5 μM).^{1,2} In cancer cells which overexpress NAD(P)H:quinone oxidoreductase, β-lapachone is reduced to β-lapachone hydroquinone, which generates reactive oxygen species during its reversion to β-lapachone.³ This process sensitizes cancer cells to radiation, suppresses NF-κB activation, and drives apoptosis.³⁻⁵

References

1. Li, C.J., Averboukh, L., and Pardee, A.B. b-Lapachone, a novel DNA topoisomerase I inhibitor with a mode of action different from camptothecin. *J. Biol. Chem.* **268(30)**, 22463-22468 (1993).
2. Lai, T.-S., Liu, Y., Tucker, T., *et al.* Identification of chemical inhibitors to human tissue transglutaminase by screening existing drug libraries. *Chem. Biol.* **15(9)**, 969-978 (2008).
3. Siegel, D., Yan, C., and Ross, D. NAD(P)H:quinone oxidoreductase 1 (NQO1) in the sensitivity and resistance to antitumor quinones. *Biochem. Pharmacol.* **83(8)**, 1033-1040 (2012).
4. Dong, G.-Z., Oh, E.-T., Lee, H., *et al.* b-Lapachone suppresses radiation-induced activation of nuclear factor-κB. *Exp. Mol. Med.* **42(5)**, 327-334 (2010).
5. Li, L.S., Bey, E.A., Dong, Y., *et al.* Modulating endogenous NQO1 levels identifies key regulatory mechanisms of action of b-lapachone for pancreatic cancer therapy. *Clin. Cancer Res.* **17**, 275-285 (2011).

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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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