

Product data sheet



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| MedKoo Cat#: 598388 Name: Lapachol CAS: 84-79-7 Chemical Formula: C ₁₅ H ₁₄ O ₃ Exact Mass: 242.0943 Molecular Weight: 242.274 | |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks. |

1. Product description:

Lapachol has antimicrobial properties against many pathogens. It has anti-inflammatory, analgesic and antibiotic properties. It is inhibitor of epithelial tumors in *Drosophila melanogaster* heterozygote.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

| Solvent | Max Conc. mg/mL | Max Conc. mM |
|---------|-----------------|--------------|
| DMSO | 74.0 | 305.44 |

4. Stock solution preparation table:

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---------------------------------------|---------|----------|----------|
| 1 mM | 4.13 mL | 20.64 mL | 41.28 mL |
| 5 mM | 0.83 mL | 4.13 mL | 8.26 mL |
| 10 mM | 0.41 mL | 2.06 mL | 4.13 mL |
| 50 mM | 0.08 mL | 0.41 mL | 0.83 mL |

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Kim J, Kim MM. Effect of Lapachol on the Inhibition of Matrix Metalloproteinase Related to the Invasion of Human Fibrosarcoma Cells. *Curr Mol Pharmacol*. 2021 Oct 25;14(4):620-626. doi: 10.2174/1874467213666201005122230. PMID: 33019942.

2. Linzner N, Fritsch VN, Busche T, Tung QN, Loi VV, Bernhardt J, Kalinowski J, Antelmann H. The plant-derived naphthoquinone lapachol causes an oxidative stress response in *Staphylococcus aureus*. *Free Radic Biol Med*. 2020 Oct;158:126-136. doi: 10.1016/j.freeradbiomed.2020.07.025. Epub 2020 Jul 24. PMID: 32712193.

In vivo study

1. Peres RS, Santos GB, Cecilio NT, Jabor VA, Niehues M, Torres BG, Buqui G, Silva CH, Costa TD, Lopes NP, Nonato MC, Ramalho FS, Louzada-Júnior P, Cunha TM, Cunha FQ, Emery FS, Alves-Filho JC. Lapachol, a compound targeting pyrimidine metabolism, ameliorates experimental autoimmune arthritis. *Arthritis Res Ther*. 2017 Mar 7;19(1):47. doi: 10.1186/s13075-017-1236-x. PMID: 28270195; PMCID: PMC5341405.

2. Xu H, Chen Q, Wang H, Xu P, Yuan R, Li X, Bai L, Xue M. Inhibitory effects of lapachol on rat C6 glioma in vitro and in vivo by targeting DNA topoisomerase I and topoisomerase II. *J Exp Clin Cancer Res*. 2016 Nov 16;35(1):178. doi: 10.1186/s13046-016-0455-3. PMID: 27852319; PMCID: PMC5112657.

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7. Bioactivity

Biological target:

Lapachol shows anti-abscess, anti-ulcer, antileishmanial, anticarcinomic, antiedemic, anti-inflammatory, antimalarial, antiseptic, antitumor, antiviral, antibacterial, antifungal and pesticidal activities.

In vitro activity

Moreover, lapachol decreased the expression level of p-p38 among MAPKs compared with the PMA treatment group. It was also found that the expression level of p65, a part of NF-kB, in nuclei was reduced in the presence of lapachol above 0.5 μ M compared with the PMA treatment group. In addition, lapachol inhibited the invasion of human fibrosarcoma cells stimulated with VEGF.

Reference: Curr Mol Pharmacol. 2021 Oct 25;14(4):620-626. <https://pubmed.ncbi.nlm.nih.gov/33019942/>

In vivo activity

In vivo, LAP (lapachol) treatment markedly reduced CIA (collagen-induced arthritis) and AIA (antigen-induced arthritis) progression as evidenced by the reduction in clinical score, articular tissue damage, and inflammation. These findings propose a binding model of interaction and support the ability of LAP to inhibit DHODH, decreasing lymphocyte proliferation and attenuating the severity of experimental autoimmune arthritis. Therefore, LAP could be considered as a potential immunosuppressive lead candidate with potential therapeutic implications for RA (rheumatoid arthritis).

Reference: Arthritis Res Ther. 2017 Mar 7;19(1):47. <https://pubmed.ncbi.nlm.nih.gov/28270195/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.