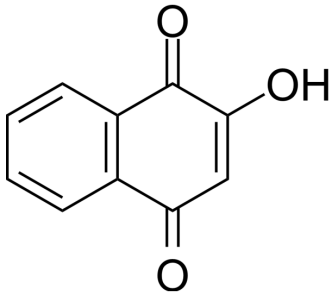
Lawsone

Cat. No.:	HY-N2493
CAS No.:	83-72-7
Molecular Formula:	$C_{10}H_6O_3$
Molecular Weight:	174.15
Target:	Fungal; Apoptosis
Pathway:	Anti-infection; Apoptosis
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (574.22 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	5.7422 mL	28.7109 mL	57.4218 mL
	5 mM	1.1484 mL	5.7422 mL	11.4844 mL
	10 mM	0.5742 mL	2.8711 mL	5.7422 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (14.36 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (14.36 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lawsone is an orally active naphthoquinone dye that can be isolated from the leaves of Lawsonia inermis. Lawsone can induce apoptosis. Lawsone has antibacterial, antitumor and antioxidant activities. Lawsone can be used in anti-tumor drug research[1][2][3][4][5].

In Vitro

Lawsone (125, 250, 500 μM, 18 h) inhibits the growth of Escherichia coli in a dose-dependent manner[3].
Lawsone (0.5, 1, 1.5, 2 mg/mL, 48 h) inhibits cell proliferation in human DLD-1 cells by reducing NF-κB activity, resulting in inhibition of the expression levels of cyclin B1 and cdk1[4].
Lawsone (10, 20, 40, 80, 160 mg/mL, 24 h) has an anti-proliferation effect in SKOV-3 ovarian cancer cells and induces apoptosis by inhibiting Bcl-2[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[4]

Cell Line:	DLD-1, MRC-5
Concentration:	0.5, 1, 1.5, 2 mg/mL
Incubation Time:	24-96 h
Result:	Demonstrated significant suppression at concentration 2 mg/ml on DLD-1 cells and exhibited no suppression on normal fibroblast MRC-5 cells.

Western Blot Analysis[4]

Cell Line:	DLD-1
Concentration:	0.5, 1, 1.5, 2 mg/mL
Incubation Time:	48 h
Result:	Decreased the level of both proteins cyclin B1 and cdk1. Exhibited a dose-dependent effect on translocation of p65 of cytosol to the nucleus.

In Vivo

Lawsone (62.5, 125, 250, 500, 750 μmol/kg/day, orally) induces hemolytic reactions associated with oxidative damage of red blood cells in rats[2].

Lawsone (200 mg/mL, orally, for 8 weeks) has a significant inhibitory effect on colon cancer in rats[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female rat model (10-11- week-old)[2]
Dosage:	62.5, 125, 250, 500, 750 μmol/kg/day
Administration:	p.o.
Result:	Increased the levels of ALT、AST、GLDH、LDH、HBDH、urea and creatinine at a dose of 500 or 750 μmol/kg/day.

Animal Model:	Rat model of colon cancer[4]
Dosage:	200 mg/mL
Administration:	p.o.
Result:	Reduced the tumor diameters and decreased multiplicity of these adenomas. Decreased the PCNA staining index

CUSTOMER VALIDATION

- Int J Biol Macromol. 2021 Apr 24.

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REFERENCES

[1]. Munday R, et al. Haemolytic activity and nephrotoxicity of 2-hydroxy-1,4-naphthoquinone in rats. J Appl Toxicol. 1991 Apr;11(2):85-90.

[2]. Sauriasari R, et al. Cytotoxicity of lawsone and cytoprotective activity of antioxidants in catalase mutant Escherichia coli. Toxicology. 2007 Jun 3;235(1-2):103-11.

[3]. Wang SB, et al. Lawsone suppresses azoxymethane mediated colon cancer in rats and reduces proliferation of DLD-1 cells via NF-κB pathway. Biomed Pharmacother. 2017 May;89:152-161.

[4]. Li P, et al. Lawsone inhibits cell growth and improves the efficacy of cisplatin in SKOV-3 ovarian cancer cell lines. African Journal of Traditional, Complementary and Alternative Medicines, 2017, 14(5): 8-17.

[5]. Tripathi RD, et al. A fungitoxic principle from the leaves of lawsonia inermis lam. Experientia. 1978 Jan 15;34(1):51-2.

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