Luteolin

Cat. No.: HY-N0162

CAS No.: 491-70-3

Molecular Formula: $C_{15}H_{10}O_6$

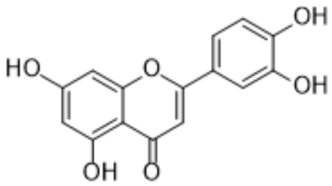
Molecular Weight: 286.24

Target: Apoptosis; Autophagy; Endogenous Metabolite; Keap1-Nrf2

Pathway: Apoptosis; Autophagy; Metabolic Enzyme/Protease; NF-κB

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (349.36 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.4936 mL	17.4679 mL	34.9357 mL
	5 mM	0.6987 mL	3.4936 mL	6.9871 mL
	10 mM	0.3494 mL	1.7468 mL	3.4936 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 20 mg/mL (69.87 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.27 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Luteolin (Luteoline), a flavanoid compound, is a potent Nrf2 inhibitor. Luteolin has anti-inflammatory, anti-cancer properties, including the induction of apoptosis and cell cycle arrest, and the inhibition of metastasis and angiogenesis, in several cancer cell lines, including human non-small lung cancer cells[1][2][3].

In Vitro

Luteolin (0-160 μM; 24 hours; NCI-H460 cells) treatment inhibits the viability of NCI-H460 cells in a concentration-dependent manner[1].

Luteolin (20-80 μM; 24 hours; NCI-H460 cells) treatment causes an accumulation of cells in the S phase[1].

Luteolin (320-580 μM; 48 hours; NCI-H460 cells) treatment induces apoptosis[1].

Luteolin (20-80 μM; 24 hours; NCI-H460 cells) treatment increases the protein expression levels of apoptotic regulatory

proteins, including the Bax/Bcl-2 ratio, in a concentration-dependent manner, however, only 80 μM Luteolin inhibits the expression of Bad. Luteolin also decreases the expression of Sirt1 in the NCI-H460 cell line in a concentration-dependent manner[1].

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

Cell Viability Assay[1]

Cell Line:	NCI-H460 cells
Concentration:	0 μM, 20 μM, 40 μM, 80 μM and 160 μM
Incubation Time:	24 hours
Result:	Inhibited the viability of NCI-H460 cells in a concentration-dependent manner.

Cell Cycle Analysis[1]

Cell Line:	NCI-H460 cells
Concentration:	20 μM, 40 μM, 80 μM
Incubation Time:	24 hours
Result:	Induced cell cycle arrest in the S phase.

Apoptosis Analysis[1]

Cell Line:	NCI-H460 cells
Concentration:	320 μM, 440 μM, 580 μM
Incubation Time:	48 hours
Result:	Apoptotic fraction was markedly increased.

Western Blot Analysis[1]

Cell Line:	NCI-H460 cells
Concentration:	20 μM, 40 μM, 80 μM
Incubation Time:	24 hours
Result:	Increased the protein expression levels of apoptotic regulatory proteins and decreased the expression of Sirt1 in the NCI-H460 cell line in a concentration-dependent manner.

In Vivo

Luteolin (10-100?mg/kg; oral gavage; daily; for 12 weeks; adult male Wistar rats) has an antioxidant effect and can also protect against non-alcoholic steatohepatitis through targeting the pro-inflammatory IL-1 and Il-18 pathways in rats with a high carbohydrate/high fat diet[2].

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

Animal Model:	Adult male Wistar rats (200-220 g)[2]
Dosage:	10 mg/kg, 25 mg/kg, 50 mg/kg or 100 mg/kg
Administration:	Oral gavage; daily; for 12 weeks
Result:	Significantly reduced ALT and AST activity and reduced levels of bilirubin, hyaluronic acid

	and malondialdehyde. Shows an antioxidant activity such as a significant increase in reduced glutathione. IFN-γ, TNF-α, IL-1α and IL-18 levels decreased significantly.

CUSTOMER VALIDATION

- Food Chem. 2022: 134807.
- Phytomedicine. 2024 May 10:130:155611.
- Biomed Pharmacother. 2024 Jul:176:116847.
- Free Radic Biol Med. 2023 Sep 15;S0891-5849(23)00638-X.
- Phytother Res. 2023 Jul 19.

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REFERENCES

[1]. Ma L, et al. Luteolin exerts an anticancer effect on NCI-H460 human non-small cell lung cancer cells through the induction of Sirt1-mediated apoptosis. Mol Med Rep. 2015 Sep;12(3):4196-4202.

[2]. Abu-Elsaad N, et al. Protection against nonalcoholic steatohepatitis through targeting IL-18 and IL-1alpha by luteolin. Pharmacol Rep. 2019 Aug;71(4):688-694.

[3]. Xiuwen Tang, et al. Luteolin inhibits Nrf2 leading to negative regulation of the Nrf2/ARE pathway and sensitization of human lung carcinoma A549 cells to therapeutic drugs. Free Radic Biol Med. 2011 Jun 1;50(11):1599-609.

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