Hexahydrocurcumin

Cat. No.: HY-N0929

CAS No.: 36062-05-2

Molecular Formula: $C_{21}H_{26}O_6$

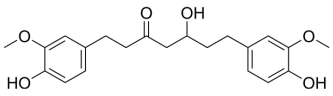
Molecular Weight: 374.43

Target: COX; Reactive Oxygen Species

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (267.07 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6707 mL	13.3536 mL	26.7073 mL
	5 mM	0.5341 mL	2.6707 mL	5.3415 mL
	10 mM	0.2671 mL	1.3354 mL	2.6707 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 (6.68 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.68 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.68 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Hexahydrocurcumin is one of the major metabolites of curcumin and a selective, orally active COX-2 inhibitor. Hexahydrocurcumin is inactive against COX-1. Hexahydrocurcumin has antioxidant, anticancer and anti-inflammatory activities[1][2].

IC_{50} & Target

COX-2

In Vitro

Hexahydrocurcumin (0-25 μM; 24-48 hours; HT-29 cells) treatment significantly decreased the viability of HT-29 colon cancer

cells in a time- and concentration-dependent. The respective IC_{50} values for 24 and 48 h of Hexahydrocurcumin exposureare 77.05 and 56.95, respectively[1].

Hexahydrocurcumin (0-25 μM; 24-48 hours; HT-29 cells) combined with 5-fluorouracil (5-FU; 5 μM) markedly reduces the COX-2 expression. The level of COX-1 is not altered[1].

Hexahydrocurcumin (0-25 μM; 24-48 hours; HT-29 cells) combined with 5-fluorouracil (5-FU; 5 μM) markedly reduces the COX-2 protein. The level of COX-1 protein is not altered[1].

Hexahydrocurcumin (7-14 μM; 24 hours) attenuates lipopolysaccharide (LPS)-elicited increase of prostaglandin E_2 (PGE_2) in murine macrophages (RAW 264.7) in a concentration-dependent manner[2].

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

Cell Viability Assay[1]

Cell Line:	HT-29 cells
Concentration:	0 μM, 5 μM, 10 μM, 25 μM
Incubation Time:	24 hours or 48 hours
Result:	Significantly decreased the viability of HT-29 colon cancer cells.

RT-PCR[1]

Cell Line:	HT-29 cells
Concentration:	25 μM
Incubation Time:	24 hours
Result:	Combined with 5-fluorouracil (5-FU; 5 μM) markedly reduced the COX-2 expression.

Western Blot Analysis[1]

Cell Line:	HT-29 cells
Concentration:	25 μM
Incubation Time:	24 hours
Result:	Combined with 5-fluorouracil (5-FU; 5 μM) markedly reduced the COX-2 protein.

In Vivo

Hexahydrocurcumin (50 mg/kg; oral administration; daily; for 16 weeks; male Wistar rats) treatment significantly reduces the numbers of aberrant crypt foci (ACF) in colon cancer rats. Hexahydrocurcumin also markedly decreases COX-2 protein expression. The levels of COX-1 protein is not different from normal rats[3].

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

Animal Model:	Male Wistar rats (100-120 g) injected with dimethylhydrazine (DMH)[3]
Dosage:	50 mg/kg
Administration:	Oral administration; daily; for 16 weeks
Result:	Significantly reduced the numbers of ACF in colon cancer rats. Also markedly decreased COX-2 protein expression.

REFERENCES

[1]. Srimuangwong K, et al. Hexahydrocurcumin enhances inhibitory effect of 5-fluorouracil on HT-29 human colon cancer cells. World J Gastroenterol. 2012 May 21;18(19):2383-9.

[2]. Li F, et al. In vitro antioxidant and anti-inflammatory activities of 1-dehydro-[6]-gingerdione, 6-shogaol, 6-dehydroshogaol and hexahydrocurcumin. Food Chem. 2012 Nov 15;135(2):332-7.

[3]. Srimuangwong K, et al. Effects of hexahydrocurcumin in combination with 5-fluorouracil on dimethylhydrazine-induced colon cancer in rats. World J Gastroenterol. 2012 Dec 21;18(47):6951-9.

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