alpha-Mangostin

Cat. No.: HY-N0328

CAS No.: 6147-11-1

Molecular Formula: $C_{24}H_{26}O_6$

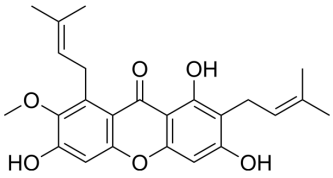
Molecular Weight: 410.46

Target: Reactive Oxygen Species; Apoptosis; Bacterial; Fungal; Virus Protease

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

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 : 110 mg/mL (267.99 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic) (insoluble)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.4363 mL	12.1815 mL	24.3629 mL
5 mM	0.4873 mL	2.4363 mL	4.8726 mL
10 mM	0.2436 mL	1.2181 mL	2.4363 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (6.70 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

alpha-Mangostin (α-Mangostin) is a dietary xanthone with broad biological activities, such as antioxidant, anti-allergic, antiviral, antibacterial, anti-inflammatory and anticancer effects. It is an inhibitor of mutant IDH1 (IDH1-R132H) with a K_i of 2.85 μM.

IC_{50} & Target

IC50: 2.85 μM (IDH1-R132H)[1]

In Vitro

alpha-Mangostin (α-Mangostin) exhibits a selective inhibitory effect on IDH1-R132H, but not on IDH1. alpha-Mangostin (α-Mangostin) competitively inhibits the binding of alpha-mangostin (α-KG) to IDH1-R132H. The structure–relationship study reveals that alpha-Mangostin (α-Mangostin) exhibits the strongest core inhibitor structure. alpha-Mangostin (α-Mangostin) selectively promotes demethylation of 5-methylcytosine (5mC) and histone H3 trimethylated lysine residues in IDH1

	(+/R132H) MCF10A cells[1]. Cell proliferation significantly decreases in a dose-dependent manner in the cells treated with alpha-mangostin. Alpha-mangostin also increases the levels of Bax (pro-apoptotic), cleaved caspase-3, cleaved caspase-9 and cleaved-poly(ADP-ribose) polymerase (PARP)[2]. alpha-Mangostin (α-Mangostin) significantly inhibits light-induced degeneration of photoreceptors and 200 μM H_2O_2-induced apoptosis of RPE cells. 200 μM H_2O_2-induced generation of reactive oxygen species (ROS) and light-induced generation of malondialdehyde (MDA) are suppressed by alpha-Mangostin (α-Mangostin)[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	alpha-Mangostin (α-Mangostin) reduces risk of liver fibrosis through the decrease in p53 expression as compared to the TAA_DMSO treatment. The serum levels of the liver enzymes AST and ALT after treatment with α-mangostin decrease as compared to DMSO alone[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	$IDH1^{+/+}$ and IDH1 MCF10A cells are grown in DMEM/F-12 media, supplemented with 5% horse serum, 20 ng/mL EGF, 0.5 μg/mL hydrocortisone, 10 μg/mL insulin. $IDH1^{+/+}$ and IDH1 MCF10A cells are seeded in 6 well plates. After an exposure to 5 μM alpha-mangostin. cells are collected after indicated times and the viable cell number is calculated, using hemacytometer counting[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [4]	Rats: Male Wistar rats are divided into 3 groups and treated with intraperitoneal injections of TAA (200 mg/kg). One subgroup is left untreated whereas the other two are treated either with 100 mg/kg alpha-mangostin or vehicle alone (80% DMSO, 20% water), which are administered intraperitoneally 3 times per weekfor a total of4 weeks. The incidence offibrotic nodules on the liver and the serum levels of the liver enzymes aspartate transaminase (AST) and alanine transaminase (ALT) are measured[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Cell Mol Med. 2020 Jan;24(1):760-771.
- Cancers (Basel). 2023 Feb 1;15(3):930.
- Pol J Microbiol. 2023 Jun 14;72(2):199-208.

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REFERENCES

[1]. Kim HJ, et al. Discovery of α-mangostin as a novel competitive inhibitor against mutant isocitrate dehydrogenase-1. Bioorg Med Chem Lett. 2015 Dec 1;25(23):5625-31.

[2]. Lee HN, et al. Antitumor and apoptosis-inducing effects of α-mangostin extracted from the pericarp of the mangosteen fruit (Garcinia mangostana L.) in YD-15 tongue mucoepidermoid carcinoma cells. Int J Mol Med. 2016 Apr;37(4):939-48.

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