Gamma-Mangostin

Cat. No.: HY-N1957

CAS No.: 31271-07-5

Molecular Formula: $C_{23}H_{24}O_6$

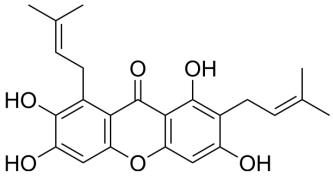
Molecular Weight: 396.43

Target: 5-HT Receptor; COX; Transthyretin (TTR)

Pathway: GPCR/G Protein; Neuronal Signaling; Immunology/Inflammation

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 (252.25 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5225 mL	12.6126 mL	25.2251 mL
	5 mM	0.5045 mL	2.5225 mL	5.0450 mL
	10 mM	0.2523 mL	1.2613 mL	2.5225 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 (6.31 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.31 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Gamma-Mangostin is a novel competitive 5-hydroxytryptamine 2A (5-HT2A) receptor antagonist and potent epoxidase 2 (COX-2) inhibitor, as well as a transthyroxin protein (TTR) profibrosis inhibitor. Gamma-Mangostin binds to the thyroxine (T4)-binding sites and stabilized the TTR tetramer[2]. Gamma-Mangostin inhibits [^3H] spiperone binding to cultured rat aortic myocytes (IC_{50}=3.5 nM) and reduces The perfusion pressure response of rat coronary artery to 5-HT2A (IC_{50}=0.32 μM). Gamma-Mangostin has anti-inflammatory, antibacterial, antioxidant and anticancer activities, and can be used in the study of metabolic disorders such as diabetes[1][2][3][4][5].

IC_{50} & Target	5-HT_{2A} Receptor	COX-2

In Vitro

Gamma-Mangostin (0.5, 2.5, 5 μM; 2 hours) as an insulin sensitizer, alleviates hyperglycemia and is nontoxic to both vascular smoothing cells isolated from the external carotid artery in SD rats and FL83B mouse hepatocytes[5].

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

Cell Viability Assay[5]

Cell Line:	vascular smoothing cells isolated from the external carotid artery of SD rats and liver cells of FL83B mice
Concentration:	0.5, 2.5, 5 μM
Incubation Time:	2h
Result:	Was not toxic to either cell line. 5 μM hypoglycemic effect was better than 0.5 and 2.5 μM. In combination with insulin, reached a plateau in its synergistic effect on glucose uptake within 90 minutes.

In Vivo

Gamma-Mangostin (0.5, 1, 2 mg/kg; Oral gavage (p.o.); 14 days) significantly reduces fasting blood glucose, cholesterol, serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), and ameliorates damaged hepatocytes, primarily swelling, hydropic changes, and necrotic cells in the streptozotocin (STZ) (HY-13753) (30 mg/kg) induced diabetic BALB/C mouse model[3].

Gamma-Mangostin (1, 2, 4 mg/kg; Oral gavage (p.o.); 14 days) significantly reduces blood urea nitrogen (BUN) and creatinine in plasma, and ameliorates the damage to renal proximal tubular cells in BALB/C mice with streptozotocin (STZ) (HY-13753) (30 mg/kg) induced diabetes[4].

Gamma-Mangostin (0.1, 0.2, 0.4 mg; Oral gavage (p.o.); 4 weeks) can reduce fasting blood glucose levels and oral glucose tolerance tests in diabetic ICR mice[5].

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

Animal Model:	STZ (HY-13753) (30 mg/kg)-induced BALB/C diabetic mouse model[3]
Dosage:	0.5 mg/kg, 1 mg/kg, 2 mg/kg
Administration:	Oral gavage (p.o.); 14 days
Result:	Significantly reduced fasting blood glucose, cholesterol, serum glutamic oxaloacetic transaminase (SGOT), and serum glutamate-pyruvate transaminase (SGPT) in diabetic mice. Improved damaged liver cells, primarily those exhibiting swelling, water accumulation, and cell necrosis.

CUSTOMER VALIDATION

- Nat Commun. 2023 Jun 10;14(1):3445.

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REFERENCES

[1]. Husen S A, et al. Hepatoprotective Effect of Gamma-mangostin for Amelioration of Impaired Liver Structure and Function in Streptozotocin-induced Diabetic Mice. 2018

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[2]. Husen S A, et al. Renal protective effects of gamma-mangostin in streptozotocin-induced diabetic mice[J]. Indian Journal of Forensic Medicine & Toxicology, 2020, 14(3): 1251-1256.

[3]. Chen, S P, Lue, et al.Gamma-mangostin of Garcinia mangostana peels ameliorates hyperglycemia in synergism of insulin. The FASEB Journal, 33: 694.11-694.11.

[4]. Chairungsrilerd N, et al. Gamma-mangostin, a novel type of 5-hydroxytryptamine 2A receptor antagonist. Naunyn Schmiedebergs Arch Pharmacol. 1998 Jan;357(1):25-31.

[5]. Yokoyama T, et al. Discovery of γ-Mangostin as an Amyloidogenesis Inhibitor. Sci Rep. 2015 Aug 27;5:13570.

Caution: Product has not been fully validated for medical applications. For research use only.

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