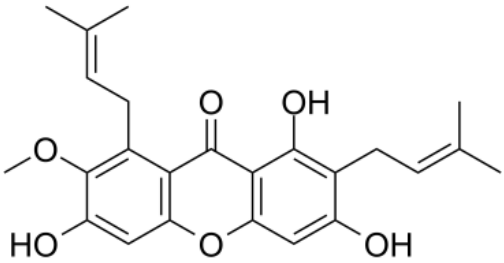
Product Data Sheet

Product Name: α-Mangostin
Cat. No.: GC35306

Chemical Properties

Cas. No.	6147-11-1		
SMILES	O=C1C2=C(OC3=C1C(C/C=C(C)\C)=C(OC)C(O)=C3)C=C(O)C(C/C=C(C)\C)=C2O		
Formula	$C_{24}H_{26}O_6$	M.Wt	410.46
Solubility	DMSO: ≥ 37 mg/mL (90.14 mM)	Storage	Store at 2-8°C,protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			



Protocol

Cell experiment [1]:

Cell lines	MCF-7 and MCF-7-CR human breast cancer cells, and HaCaT human keratinocyte cells

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Preparation Method	Cells were maintained in Dulbecco's Modified Eagle Medium (DMEM) supplemented with 10% fetal bovine serum (FBS) at 37°C, 5% CO_2. Cells were treated with α-Mangostin at various concentrations (10-30μM) for 12-48 hours.
Reaction Conditions	10-30μM; 12-48 hours.
Applications	α-Mangostin significantly induced dose-dependent apoptotic cell death in MCF-7 cells. α-Mangostin treatment led to the upregulation of endogenous MOAP-1 protein expression and downregulation of BCL-XL, while promoting the interaction between MOAP-1 and activated BAX (act-BAX).

Animal experiment [2]:

Animal models	Nude mice (A375 xenograft) and C57BL/6 mice (B16F10 allograft)
Preparation Method	Mice were subcutaneously inoculated with A375 or B16F10 melanoma cells. Seven days post-implantation, mice were intraperitoneally administered α-Mangostin (10mg/kg) every two days. Mice were sacrificed, and tumors were dissected for analysis.
Dosage form	10mg/kg; i.p.; Administered every two days.
Applications	α-Mangostin significantly inhibited melanoma tumor growth in both nude mouse and C57BL/6 mouse models. α-Mangostin potentiated the anti-tumor effect of cisplatin, leading to a significantly greater reduction in tumor volume compared to monotherapy in immunocompetent C57BL/6 mice.

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References:
[1] Simon SE, Lim HS, Jayakumar FA, et al. Alpha-Mangostin Activates MOAP-1 Tumor Suppressor and Mitochondrial Signaling in MCF-7 Human Breast Cancer Cells. Evid Based Complement Alternat Med. 2022 Jan 17;2022:7548191.
[2] Xie Y, Gong C, Xia Y, et al. α-Mangostin Suppresses Melanoma Growth, Migration, and Invasion and Potentiates the Anti-tumor Effect of Chemotherapy. Int J Med Sci. 2023 Aug 6;20(9):1220-1234.

Background

α-Mangostin is a natural xanthone compound extracted from the peel of *Garcinia mangostana* and exhibits a wide range of biological activities[1-2]. α-Mangostin exerts anti-inflammatory effects by downregulating the NF-κB pathway, while also displaying antioxidant activity through scavenging free radicals and inhibiting ROS generation. α-Mangostin can be used in research related to cancer, antibacterial, and antiviral studies[3-4].

In vitro, treatment of MCF-7 human breast cancer cells with α-Mangostin (10–30μM) for 12–48 hours, α-Mangostin significantly upregulates MOAP-1 protein expression and promotes its interaction with activated BAX, inducing BAX oligomerization, mitochondrial cytochrome C release, and caspase activation, while downregulating BCL-XL protein levels, ultimately leading to apoptosis[5]. In HUAEC vascular endothelial cells treated with α-Mangostin (10μM) for 24 hours, α-Mangostin inhibits KDR tyrosine kinase and its phosphorylation at the Y1175 site, and suppresses cell proliferation, migration, and tube formation[6].

In vivo, in an angiotensin II-induced hypertensive C57BL/6 mouse model treated with α-Mangostin (4-8mg/kg; administered twice daily via oral gavage for 2 weeks), α-Mangostin significantly reduced systolic blood pressure, improved endothelium-dependent vasodilation, reversed aortic wall thickening and collagen deposition, downregulated aortic ACE/AT1R expression, and upregulated the ACE2/Ang-(1-7)/MasR axis activity [7]. In A375 and B16F10 cell-transplanted nude and C57BL/6 mouse melanoma models treated with α-Mangostin (10mg/kg; intraperitoneal injection every 2 days starting from day 7 after implantation), α-Mangostin significantly inhibited tumor growth and enhanced the chemotherapeutic efficacy of Cisplatin (3mg/kg)[8].

References:

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[1] Majdalawieh AF, Khatib BK, Terro TM. α-Mangostin Is a Xanthone Derivative from Mangosteen with Potent Immunomodulatory and Anti-Inflammatory Properties. Biomolecules. 2025 May 7;15(5):681.
[2] Chavan T, Muth A. The diverse bioactivity of α-mangostin and its therapeutic implications. Future Med Chem. 2021 Oct;13(19):1679-1694.
[3] Liu X, Song M, Liu Y, et al. Rational Design of Natural Xanthones Against Gram-negative Bacteria. Adv Sci (Weinh). 2025 Apr;12(14):e2411923.
[4] Majdalawieh AF, Terro TM, Ahari SH, et al. α-Mangostin: A Xanthone Derivative in Mangosteen with Potent Anti-Cancer Properties. Biomolecules. 2024 Oct 30;14(11):1382.
[5] Simon SE, Lim HS, Jayakumar FA, et al. Alpha-Mangostin Activates MOAP-1 Tumor Suppressor and Mitochondrial Signaling in MCF-7 Human Breast Cancer Cells. Evid Based Complement Alternat Med. 2022 Jan 17;2022:7548191.
[6] Shiozaki T, Fukai M, Hermawati E, et al. Anti-angiogenic effect of α-mangostin. J Nat Med. 2013 Jan;67(1):202-6.
[7] Xue QQ, Liu CH, Zhang DY, et al. α-Mangostin Attenuates Blood Pressure and Reverses Vascular Remodeling by Balancing ACE/AT1R and ACE2/Ang-(1-7)/MasR Axes in Ang II-Infused Hypertensive Mice. Phytother Res. 2024 Dec;38(12):5918-5929.
[8] Xie Y, Gong C, Xia Y, et al. α-Mangostin Suppresses Melanoma Growth, Migration, and Invasion and Potentiates the Anti-tumor Effect of Chemotherapy. Int J Med Sci. 2023 Aug 6;20(9):1220-1234.

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