

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

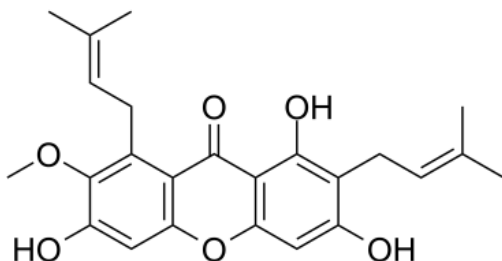
Formula $C_{24}H_{26}O_6$ M.Wt 410.46

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

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

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Cells were maintained in Dulbecco's Modified Eagle Medium (DMEM) Preparation Method supplemented with 10% fetal bovine serum (FBS) at 37°C, 5% CO₂. 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- κ B 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 (10–30 μ M) 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 (10 μ M) 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].

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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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