

Product Data Sheet

Product Name: Tangeretin

Cat. No.: GN10797

Chemical Properties

Cas. No. 481-53-8

Chemical Name 5,6,7,8-tetramethoxy-2-(4-methoxyphenyl)chromen-4-one

SMILES COC1=CC=C(C=C1)C2=CC(=O)C3=C(O2)C(=C(C(=C3OC)OC)OC)OC

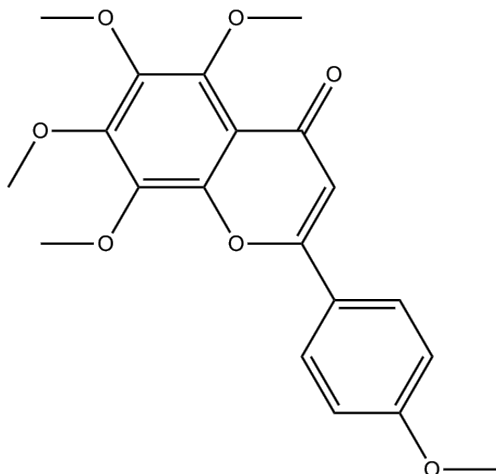
Formula $C_{20}H_{20}O_7$ M.Wt 372.38

Solubility $\geq 37.2\text{mg/mL}$ in DMSO Storage Store at RT

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 HepG2 cells

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

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Preparation Method HepG2 cells were pretreated with Tangeretin (0–20 μ M) for 24h and then exposed to t-BHP for another 3h. Then MTT assay was used for the determination of cytotoxicity.

Reaction Conditions 20 μ M; 24h

Applications Tangeretin markedly protected HepG2 cells from t-BHP-induced cytotoxicity.

Animal experiment [2]:

Animal models Adult male Wistar Rats

Preparation Method Rats received Tangeretin for 7 days and a single dose of cisplatin (7.5mg/kg) on the 2nd day of the experiment day, 1 hour after the dose of Tangeretin. Animals were sacrificed and blood samples were collected to separate serum. The collected serum was used for the colorimetric estimation of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) by measuring the amount of pyruvate or oxaloacetate produced by forming 2,4-dinitrophenylhydrazine.

Dosage form 100mg/kg/day; 7d; oral

Applications Tangeretin pretreatment significantly alleviated the development of cisplatin-induced liver tissue damage.

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References:

- [1]. Liang F, Fang Y, Cao W, et al. Attenuation of tert-Butyl Hydroperoxide (t-BHP)-Induced Oxidative Damage in HepG2 Cells by Tangeretin: Relevance of the Nrf2-ARE and MAPK Signaling Pathways. J Agric Food Chem. 2018 Jun 27;66(25):6317-6325. doi: 10.1021/acs.jafc.8b01875. Epub 2018 Jun 14. PMID: 29871486.
- [2]. Omar HA, Mohamed WR, Arab HH, Arafa el-SA. Tangeretin Alleviates Cisplatin-Induced Acute Hepatic Injury in Rats: Targeting MAPKs and Apoptosis. PLoS One. 2016 Mar 31;11(3):e0151649. doi: 10.1371/journal.pone.0151649. PMID: 27031695; PMCID: PMC4816535.

Background

Tangeretin is a naturally polymethoxylated flavone compound extracted from the citrus peel and acts as a Notch-1 inhibitor^[1]. Tangeretin exhibits antitumor properties in several types of cancerous cell lines^[2] and targets some hallmarks of cancer, such as antiproliferative, apoptotic, anti-inflammatory, anti-metastatic, anti-angiogenic, antioxidant, regulatory expression of tumor-suppressor genes, and epigenetic modulation^[3].

Tangeretin (20μM; 24h) inhibits ROS generation and GSH depletion induced by t-BHP in HepG2 cells^[4]. Tangeretin (45μM; 48h) treatment increases G2/M arrest and apoptosis by modulating PTEN and cell-cycle regulated genes such as cyclin-D mRNA and protein expressions^[5].

Tangeretin (100mg/kg) pre-treatment significantly alleviated liver damage, inhibited cisplatin-induced lipid profile aberrations (total cholesterol and triglycerides) and diminished histopathologic structural damage in rat liver tissues^[6]. Tangeretin (100mg/kg; 3d; i.g.) inhibits human respiratory syncytial virus (RSV) replication and RSV-induced lung inflammation in mouse^[7].

References:

- [1]. Liu LL, Li FH, Zhang Y, et al. Tangeretin has anti-asthmatic effects via regulating PI3K and Notch signaling and modulating Th1/Th2/Th17 cytokine balance in neonatal asthmatic mice. Braz J Med Biol Res. 2017 Jul 20;50(8):e5991. doi: 10.1590/1414-431X20175991. PMID: 28746467; PMCID: PMC5520220.
- [2]. Arafa EA, Shurrab NT, Buabeid MA. Therapeutic Implications of a Polymethoxylated Flavone, Tangeretin, in the Management of Cancer via Modulation of Different Molecular Pathways. Adv

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Pharmacol Pharm Sci. 2021 Mar 5;2021:4709818. doi: 10.1155/2021/4709818. PMID: 33748757; PMCID: PMC7954633.

[3]. de Luna FCF, Ferreira WAS, Casseb SMM, de Oliveira EHC. Anticancer Potential of Flavonoids: An Overview with an Emphasis on Tangeretin. Pharmaceuticals (Basel). 2023 Aug 30;16(9):1229. doi: 10.3390/ph16091229. PMID: 37765037; PMCID: PMC10537037.

[4]. Liang F, Fang Y, Cao W, et al. Attenuation of tert-Butyl Hydroperoxide (t-BHP)-Induced Oxidative Damage in HepG2 Cells by Tangeretin: Relevance of the Nrf2-ARE and MAPK Signaling Pathways. J Agric Food Chem. 2018 Jun 27;66(25):6317-6325. doi: 10.1021/acs.jafc.8b01875. Epub 2018 Jun 14. PMID: 29871486.

[5]. Ma LL, Wang DW, Yu XD, et al. Tangeretin induces cell cycle arrest and apoptosis through upregulation of PTEN expression in glioma cells. Biomed Pharmacother. 2016 Jul;81:491-496. doi: 10.1016/j.biopha.2016.04.006. PMID: 27261630.

[6]. Omar HA, Mohamed WR, Arab HH, et al. Tangeretin Alleviates Cisplatin-Induced Acute Hepatic Injury in Rats: Targeting MAPKs and Apoptosis. PLoS One. 2016 Mar 31;11(3):e0151649. doi: 10.1371/journal.pone.0151649. PMID: 27031695; PMCID: PMC4816535.

[7]. Xu JJ, Liu Z, Tang W, et al. Tangeretin from Citrus reticulata Inhibits Respiratory Syncytial Virus Replication and Associated Inflammation in Vivo. J Agric Food Chem. 2015 Nov 4;63(43):9520-7. doi: 10.1021/acs.jafc.5b03482. Epub 2015 Oct 26. PMID: 26468759.

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