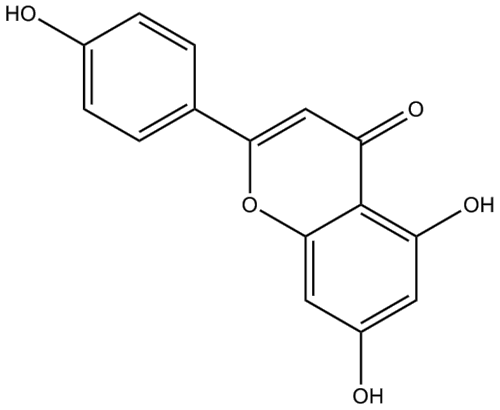
Product Data Sheet

Product Name: Apigenin
Cat. No.: GN10150

Chemical Properties

Cas. No.	520-36-5		
Chemical Name	5,7-dihydroxy-2-(4-hydroxyphenyl)chromen-4-one		
SMILES	C1=CC(=CC=C1C2=CC(=O)C3=C(C=C(C=C3O2)O)O)O		
Formula	$C_{15}H_{10}O_5$	M.Wt	270.24
Solubility	≥ 9.8mg/mL in DMSO	Storage	Store at -20°C
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

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Preparation Method	the cells were exposed to various concentrations of Apigenin (20, 40, and 80 μmol/L) for 48 h, then harvested with EDTA and washed twice with PBS.
Reaction Conditions	20, 40, and 80 μmol/L; 48 h
Applications	After the cells were treated with Apigenin for 48 h, the apoptosis rates were 5.76%, 19.17%, and 29.30% respectively in 20, 40, and 80 micromol/L groups.

Animal experiment [2]:

Animal models	C57BL/6 mice
Preparation Method	Groups of 6-to-8-weeks-old C57BL/6 mice (6 mice per group) were intraperitoneally (i.p.) inoculated with 0.2 ml of suspension containing 1×106 #40a cells in PBS 1 week after pristane injection (250 μl). Mice were treated i.p. weekly with 20mg/kg Apigenin (dissolved in DMSO and then diluted in 400 μl PBS). The control group was injected weekly with the same amount of vehicle solution .
Dosage form	20mg/kg; i.p.
Applications	Intraperitoneal administration of Apigenin reduces the growth of malignant mesothelioma MM cell lines transplanted into the peritoneum of C57 BL/6 mice.

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

[1] Wu K, et al. Inhibitory effects of apigenin on the growth of gastric carcinoma SGC-7901 cells. World J Gastroenterol. 2005 Aug 7;11(29):4461-4.
[2] Laura M , Monica B , Rosanna M ,et al. In Vitro and In Vivo Anti-tumoral Effects of the Flavonoid Apigenin in Malignant Mesothelioma[J].Frontiers in Pharmacology, 2017.8:373.

Background

Apigenin (API), or 4′,5,7-trihydroxyflavone, is a bioactive flavonoid present in many plants, known for its anti-inflammatory, antioxidant, and anticancer properties. Apigenin is a competitive inhibitor of CYP2C9, with a Ki of 2 μM[1]. It inhibits the activation of the Wnt/β-catenin signaling pathway and the activity of NF-κB, and blocks the phosphorylation of c-Met and its downstream effectors[2].

In vitro, apigenin (6.25-100 μM) shows dose- and time-dependent cytotoxic effects on malignant mesothelioma (MM) cell lines[2]. After 72 hours of treatment with apigenin, the IC50 values for MM-B1, MM-F1, and H-Meso-1 cells were 49.16 ± 2.52μM, 46.95 ± 1.69μM, and 34.31 ± 1.55μM, respectively[2]. Treatment of SGC-7901 cells with apigenin for 48 hours at concentrations of 20, 40, and 80μmol/L resulted in apoptosis rates of 5.76%, 19.17%, and 29.30%, respectively. Apigenin exhibited dose-dependent effects on the growth, colony formation, and proliferation of SGC-7901 cells[3]. Apigenin (0-50 μg/ml) inhibited the proliferation of T-24 cells in a dose-dependent manner and, after 12 hours, increased the levels of ROS while depleting GSH in T-24 cells[4].

In vivo, treatment with apigenin (20mg/kg, intraperitoneally) in C57BL/6 mice reduced the growth of transplanted malignant mesothelioma MM cell lines in the peritoneal cavity of the mice[2]. Treatment with apigenin at doses of 125mg/kg or 250mg/kg in mice with ADR-induced cardiomyopathy via gastric gavage for 17 days increased the phosphorylation of AKT and mTOR in cardiac cells, as well as the expression of PI3K, and reduced apoptosis and autophagy in cardiac cells[5].

References:
[1] Si D, Wang Y, et al. Mechanism of CYP2C9 inhibition by flavones and flavonols. Drug Metab Dispos. 2009 Mar;37(3):629-34.
[2] Laura M , Monica B , Rosanna M ,et al. In Vitro and In Vivo Anti-tumoral Effects of the Flavonoid Apigenin in Malignant Mesothelioma[J].Frontiers in Pharmacology, 2017.8:373.
[3] Wu K, et al. Inhibitory effects of apigenin on the growth of gastric carcinoma SGC-7901 cells.

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World J Gastroenterol. 2005 Aug 7;11(29):4461-4.
[4] Shi M D , Shiao C K , Lee Y C ,et al.Apigenin, a dietary flavonoid, inhibits proliferation of human bladder cancer T-24 cells via blocking cell cycle progression and inducing apoptosis[J].BioMed Central, 2015(1).
[5] Wei Y , Huirong S , Wenliang Z ,et al.Apigenin Attenuates Adriamycin-Induced Cardiomyocyte Apoptosis via the PI3K/AKT/mTOR Pathway[J].Evidence-based Complementary and Alternative Medicine, 2017, 2017:1-9.

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