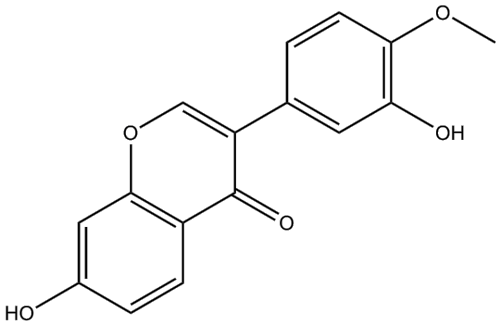
Product Data Sheet

Product Name: Calycosin
Cat. No.: GN10667

Chemical Properties

Cas. No.	20575-57-9		
Chemical Name	7-hydroxy-3-(3-hydroxy-4-methoxyphenyl)chromen-4-one		
SMILES	COC1=C(C=C(C=C1)C2=COC3=C(C2=O)C=CC(=C3)O)O		
Formula	$C_{16}H_{12}O_5$	M.Wt	284.26
Solubility	DMSO : ≥ 100 mg/mL(351.79 mM)	Storage	Store at 2-8°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 AGS cells

Product Data Sheet

Preparation Method	AGS cells were cultured in RPMI-1640 medium supplemented with 10% fetal bovine serum, 100U/ml penicillin, and 100μg/ml streptomycin at 37°C with 5% CO_2 and 95% saturated atmospheric humidity. Cells were seeded into 96-well microplates at a density of 1×10^4 cells/ml for 24h. Various concentrations of Calycosin (0, 1, 10, 20, 40, 60, 80, and 100μM) were added to each well. After 24h of incubation, cell viability was analyzed.
Reaction Conditions	0, 1, 10, 20, 40, 60, 80, and 100μM; 24h
Applications	Calycosin treatment significantly reduced the cell viability of AGS cells in a dose-dependent manner.

Animal experiment [2]:

Animal models	Male Balb/c mice
Preparation Method	Male Balb/c mice (6 weeks old; 18-20g) were housed under standard laboratory conditions on a 12-hour light/dark cycle (lights on at 7:00 am), constant temperature (23±2°C), and constant humidity (60±5), ad libitum food and water. Mice were treated with 2.5% DSS aqueous solution for 7 days and kept on water for an additional 4 days to exhibit colitis. Mice were orally administered Calycosin at a dose of 50mg/kg daily for 10 days, after which the colon tissues were collected for analysis.
Dosage form	50mg/kg/day; 10 days; p.o.
Applications	Calycosin treatment reduced colonic mucosal damage and colonic shortening in mice with colitis.

Product Data Sheet

References:
[1] Zhang Y, Zhang J Q, Zhang T, et al. Calycosin induces gastric cancer cell apoptosis via the ROS-mediated MAPK/STAT3/NF-κB pathway[J]. OncoTargets and therapy, 2021: 2505-2517.
[2] Chao L, Zheng P, Xia L, et al. Calycosin attenuates dextran sulfate sodium (DSS)-induced experimental colitis[J]. Iranian Journal of Basic Medical Sciences, 2017, 20(9): 1056.

Background

Calycosin, a naturally occurring isoflavonoid found predominantly in *Astragalus membranaceus*, has antioxidant, anti-inflammatory, and anti-apoptotic properties[1]. By inhibiting the activation of NF-κB, Calycosin can reduce the production of pro-inflammatory cytokines (TNF-α, IL-1β, and IL-6), and alleviate the inflammatory response[2]. Calycosin has been widely used to stabilize membrane structures, improve membrane integrity, and alleviate cellular oxidative damage[3].

In vitro, Calycosin treatment for 24 hours significantly inhibited the viability of AGS, KATO-3, and MKN-28 cells, with IC_{50} values of 47.18μM, 82.17μM and 71.93μM, respectively[4]. Treatment with 80μM Calycosin for 48 hours significantly induced apoptosis in HT29 cells, accompanied by a decrease in the protein level of LC31 and an increase in the protein levels of LC3II and Beclin-1[5]. Treatment with 100μM Calycosin for 24 hours significantly inhibited the IGF-1R signaling pathway in MDA-435 cells and reduced cell viability[6].

In vivo, Calycosin treatment via oral administration at a dose of 50mg/kg daily for 10 days significantly alleviated the intestinal damage in mice induced by dextran sulfate sodium (DSS) and prevented the weight loss of the mice[7]. Oral administration of Calycosin at a dose of 50mg/kg/day for 3 days significantly alleviated myocardial fibrosis and cardiac dysfunction following myocardial infarction in mice[8].

References:
[1] Ahmed H S. Neuropharmacological effects of calycosin: a translational review of molecular mechanisms and therapeutic applications[J]. Naunyn-Schmiedeberg's Archives of Pharmacology, 2025, 398(10): 12891-12909.
[2] Gong G, Zheng Y, Yang Y, et al. Pharmaceutical values of calycosin: one type of flavonoid

Product Data Sheet

isolated from astragalus[J]. Evidence-Based Complementary and Alternative Medicine, 2021, 2021(1): 9952578.
[3] Gao J Q, Liu Z J, Chen T, et al. Pharmaceutical properties of calycosin, the major bioactive isoflavonoid in the dry root extract of Radix astragali[J]. Pharmaceutical biology, 2014, 52(9): 1217-1222.
[4] Zhang Y, Zhang J Q, Zhang T, et al. Calycosin induces gastric cancer cell apoptosis via the ROS-mediated MAPK/STAT3/NF-κB pathway[J]. OncoTargets and therapy, 2021: 2505-2517.
[5] El-kott A F, Al-kahtani M A, Shati A A. Calycosin induces apoptosis in adenocarcinoma HT 29 cells by inducing cytotoxic autophagy mediated by SIRT 1/AMPK-induced inhibition of Akt/mTOR[J]. Clinical and Experimental Pharmacology and Physiology, 2019, 46(10): 944-954.
[6] Chen J, Hou R, Zhang X, et al. Calycosin suppresses breast cancer cell growth via ERβ-dependent regulation of IGF-1R, p38 MAPK and PI3K/Akt pathways[J]. PloS one, 2014, 9(3): e91245.
[7] Chao L, Zheng P, Xia L, et al. Calycosin attenuates dextran sulfate sodium (DSS)-induced experimental colitis[J]. Iranian Journal of Basic Medical Sciences, 2017, 20(9): 1056.
[8] Chen G, Xu H, Xu T, et al. Calycosin reduces myocardial fibrosis and improves cardiac function in post-myocardial infarction mice by suppressing TGFBR1 signaling pathways[J]. Phytomedicine, 2022, 104: 154277.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA