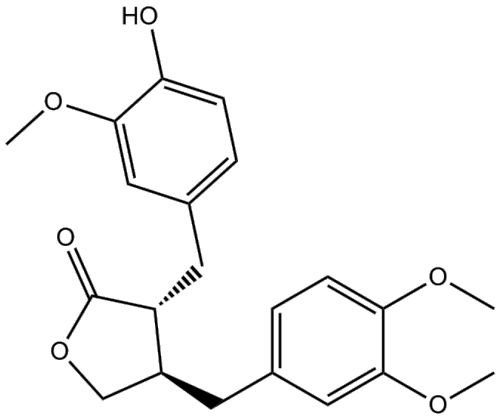
Product Data Sheet

Product Name: Arctigenin
Cat. No.: GN10063

Chemical Properties

Cas. No.	7770-78-7		
Chemical Name	(3R,4R)-4-[(3,4-dimethoxyphenyl)methyl]-3-[(4-hydroxy-3-methoxyphenyl)methyl]oxolan-2-one		
SMILES	COC1=C(C=C(C=C1)CC2COC(=O)C2CC3=CC(=C(C=C3)O)OC)OC		
Formula	$C_{21}H_{24}O_6$	M.Wt	372.41
Solubility	≥ 17.2mg/mL in DMSO	Storage	Desiccate 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	U87MG and T98G human glioma cell lines

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Preparation Method	The U87MG and T98G human glioma cell lines were treated with Actigenin (1-40μM) for 48 h.
Reaction Conditions	Actigenin (1-40μM) ;48 h
Applications	Arctigenin dose-dependently inhibited the growth of U87MG and T98G cells.

Animal experiment [2]:

Animal models	Female ob/ob mice modle
Preparation Method	Female ob/ob mice were given Arctigenin (25 mg/kg;ip; twice daily) for 22 day.
Dosage form	Arctigenin (200 mg/kg q2d);23 day;ip.
Applications	Arctigenin (25 mg/kg;ip;twice daily)increased insulin-stimulated AKT phosphorylation in gastrocnemius muscle and liver,but not in perirenal fat.

References:
[1]. Maimaitili A, Shu Z, Cheng X, Kaheerman K, Sikandeer A, Li W. Arctigenin, a natural lignan compound, induces G0/G1 cell cycle arrest and apoptosis in human glioma cells. Oncol Lett. 2017 Feb;13(2):1007-1013.
[2]. Huang SL, Yu RT, Gong J, Feng Y, Dai YL, Hu F, Hu YH, Tao YD, Leng Y. Arctigenin, a natural compound, activates AMP-activated protein kinase via inhibition of mitochondria complex I and ameliorates metabolic disorders in ob/ob mice. Diabetologia. 2012 May;55(5):1469-81.

Background

Arctigenin,a natural lignan compound,has demonstrated anticancer activities in cancer. Arctigenin

exhibits potent antioxidant, anti-inflammatory and antiviral (influenza A virus) activities [3,4].

Arctigenin (40 μM;48h) inhibited the growth of U87MG and T98G cells, induced G0/G1 cell-cycle arrest and triggered cell apoptosis in glioma cells[1]. Arctigenin (10,20,40,80 and 100μmol/L;48h) possesses anti-tumor activity in bladder cancer T24 cells. At the molecular level, arctigenin was able to reduce cyclin D1 and phospho-ERK1/2 expression, but induce phospho-p38 levels[4]. Arctigenin (0,1.56,12.5,100 μM; 24h) induce apoptosis in HCC cells via mitochondria and Fas/FasL-dependent apoptotic pathways[5].

Arctigenin (25 mg/kg;ip; twice daily) for 23 day increased insulin-stimulated AKT phosphorylation in gastrocnemius muscle and liver, but not in perirenal fat[2]. Arctigenin (50mg/kg/day;ip) for 4 day confers protection against LPS-induced lung inflammatory and oxidative damage [6].

References:
[1]. Maimaitili A, Shu Z, Cheng X, Kaheerman K, Sikandeer A, Li W. Arctigenin, a natural lignan compound, induces G0/G1 cell cycle arrest and apoptosis in human glioma cells. Oncol Lett. 2017 Feb;13(2):1007-1013
[2]. Huang SL, Yu RT, Gong J, Feng Y, Dai YL, Hu F, Hu YH, Tao YD, Leng Y. Arctigenin, a natural compound, activates AMP-activated protein kinase via inhibition of mitochondria complex I and ameliorates metabolic disorders in ob/ob mice. Diabetologia. 2012 May;55(5):1469-81.
[3]. Hayashi K, Narutaki K, Nagaoka Y, Hayashi T, Uesato S. Therapeutic effect of arctiin and arctigenin in immunocompetent and immunocompromised mice infected with influenza A virus. Biol Pharm Bull. 2010;33(7):1199-205.
[4]. Yang S, Ma J, Xiao J, Lv X, Li X, Yang H, Liu Y, Feng S, Zhang Y. Arctigenin anti-tumor activity in bladder cancer T24 cell line through induction of cell-cycle arrest and apoptosis. Anat Rec (Hoboken). 2012 Aug;295(8):1260-6.
[5]. Lu Z, Cao S, Zhou H, Hua L, Zhang S, Cao J. Mechanism of Arctigenin-Induced Specific Cytotoxicity against Human Hepatocellular Carcinoma Cell Lines: Hep G2 and SMMC7721. PLoS One. 2015 May 1;10(5):e0125727.
[6]. Zhang WZ, Jiang ZK, He BX, Liu XB. Arctigenin Protects against Lipopolysaccharide-Induced Pulmonary Oxidative Stress and Inflammation in a Mouse Model via Suppression of MAPK, HO-1, and iNOS Signaling. Inflammation. 2015 Aug;38(4):1406-14.