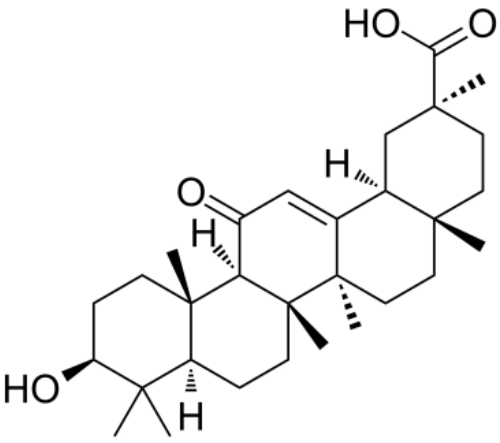
Product Data Sheet

Product Name: 18α-Glycyrrhetinic acid
Cat. No.: GC35061

Chemical Properties

Cas. No.	1449-05-4		
SMILES	CC1(C)[C@@H](O)CC[C@@]2(C)[C@@]1([H])CC[C@]([C@@](CC[C@]3(C)[C@]4([H])C[C@@](C)(C(O)=O)CC3)(C)C4=C5)(C)[C@]2([H])C5=O		
Formula	$C_{30}H_{46}O_4$	M.Wt	470.68
Solubility	DMF: 13 mg/ml,DMSO: 16 mg/ml,Ethanol: 20 mg/ml,Ethanol:PBS (pH7.2) (1:7): 0.13 mg/ml	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]:

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Cell lines	Human HSC cell line
Preparation Method	2×10^4 cells per well were seeded onto 24-well plates and incubated overnight. After starvation for 24h, the cells were subsequently stimulated with 10% FBS with or without the presence of 18α-Glycyrrhetinic acid. The number of cells was determined by computer-equipped cell counter 72h after treated with 18α-Glycyrrhetinic acid.
Reaction Conditions	8μM; 72h
Applications	18α-Glycyrrhetinic acid inhibited cell growth.
Animal experiment [2]:	
Animal models	BALB/c mice
Preparation Method	18α-Glycyrrhetinic acid solution was prepared in DMSO. A concentration of 10mg 18α-Glycyrrhetinic acid per kilogram of each mouse was used to be intraperitoneally injected in test group every other day within 30 consecutive days. The mice in the control group were treated with 2% DMSO (equal to the test group) as a vehicle in PBS. The expression of co-stimulatory molecules CD40 and MHC-II on isolated dendritic cells from mice were investigated by flow cytometry.
Dosage form	10mg/kg; 30d; q2d; i.p.

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Applications	18α-Glycyrrhetinic acid significantly decreased the expression of CD40 and MHC-II molecules.
References:[1] Zong L, Qu Y, Xu M Y, et al. 18α-Glycyrrhetinic acid extracted from *Glycyrrhiza radix* inhibits proliferation and promotes apoptosis of the hepatic stellate cell line [J]. Journal of digestive diseases, 2013, 14(6): 328-336.[2] Ebrahimnezhad S, Amirghofran Z, Karimi M H. Decline in immunological responses mediated by dendritic cells in mice treated with 18α-glycyrrhetinic acid [J]. Immunological investigations, 2016, 45(3): 191-204.	

Background

18α-Glycyrrhetinic acid is a bioactive triterpenoid mainly derived from *Glycyrrhiza radix*. 18α-Glycyrrhetinic acid has various pharmacological activities such as anti-oxidative and anti-inflammatory[1]. 18α-Glycyrrhetinic acid can inhibit oxidative stress via activating Nrf-2 signaling [1].

18α-Glycyrrhetinic acid (8μM; 72h) inhibited cell growth in Human HSC cells [2]. 18α-Glycyrrhetinic acid (4μg/mL; 24h) significantly reduced ROS (reactive oxygen species) production in fructose-treated HK2 cells[3]. 18α-Glycyrrhetinic acid (50μM; 48h) decreased the cell viability in Caco-2 cells[4]. 18α-Glycyrrhetinic acid (2μg/mL; 24h) increased the cell viability in mitomycin C-induced HFL-1 cells[1].

18α-Glycyrrhetinic acid (10mg/kg; 30d; q2d; i.p.) significantly decreased the expression of CD40 and MHC-II molecules in BALB/c mice[5]. 18α-Glycyrrhetinic acid (12.5, 25 and 50mg/kg; 12 weeks; p.o.) alleviated fructose-induced renal injury in C57BL/6 mice[3].

References:
[1] Lefaki M, Papaevgeniou N, Tur J A, et al. The dietary triterpenoid 18α-glycyrrhetinic acid protects from MMC-induced genotoxicity through the ERK/Nrf2 pathway [J]. Redox biology, 2020, 28: 101317.
[2] Zong L, Qu Y, Xu M Y, et al. 18α-Glycyrrhetinic acid extracted from *Glycyrrhiza radix* inhibits proliferation and promotes apoptosis of the hepatic stellate cell line [J]. Journal of digestive diseases, 2013, 14(6): 328-336.
[3] Cheng X, Qiu L, Wang F. 18α-Glycyrrhetinic acid (GA) ameliorates fructose-induced nephropathy in mice by suppressing oxidative stress, dyslipidemia and inflammation [J]. Biomedicine &

pharmacotherapy, 2020, 125: 109702.
[4] Malekinejad M, Pashaee M R, Malekinejad H. 18β-Glycyrrhetinic acid altered the intestinal permeability in the human Caco-2 monolayer cell model [J]. European journal of nutrition, 2022, 61(7): 3437-3447.
[5] Ebrahimnezhad S, Amirghofran Z, Karimi M H. Decline in immunological responses mediated by dendritic cells in mice treated with 18α-glycyrrhetinic acid [J]. Immunological investigations, 2016, 45(3): 191-204.