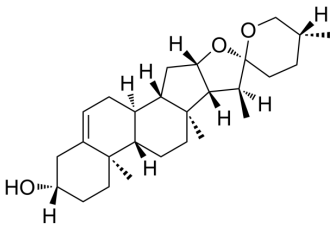
Diosgenin

Cat. No.:	HY-N0177
CAS No.:	512-04-9
Molecular Formula:	$C_{27}H_{42}O_3$
Molecular Weight:	414.62
Target:	STAT; MicroRNA
Pathway:	JAK/STAT Signaling; Stem Cell/Wnt; Epigenetics
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 3.33 mg/mL (8.03 mM; Need ultrasonic)
DMSO : < 1 mg/mL (insoluble or slightly soluble)
H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4118 mL	12.0592 mL	24.1185 mL
	5 mM	0.4824 mL	2.4118 mL	4.8237 mL
	10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: corn oil
   Solubility: 2.5 mg/mL (6.03 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.67 mg/mL (1.62 mM); Clear solution
3. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.67 mg/mL (1.62 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 0.67 mg/mL (1.62 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Diosgenin, a steroidal saponin, can inhibit STAT3 signaling pathway[1]. Diosgenin is an exogenous activator of Pdia3/ERp57 [2]. Diosgenin inhibits aortic atherosclerosis progression by suppressing macrophage miR-19b expression[5].

IC_{50} & Target	STAT3
In Vitro	In MC65 cells, a cellular AD model, diosgenin exhibited weak protective abilities at 1 μM, may represent a good candidate as a steroidal moiety in our bivalent compounds against AD pathology[3]. Diosgenin inhibits the constitutive activation of STAT3 in C3A cells in a dose-dependent manner, with maximum inhibition occurring at around 100 μM[1]. Diosgenin (10 μM; 24 h) significantly decreases the levels of miR-19b in foam cells[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Diosgenin treatment significantly reduces fasted and refed blood glucose level in HF dietfed mice. Diosgenin treatment significantly reduces blood glucose level in IPGTT test, compared with that of HF diet-fed mice[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Biomed Sci. 2023 Jun 27;30(1):44.
- Phytomedicine. 2024 Jan 20, 155299.
- Authorea. May 12, 2022.
- Cell Physiol Biochem. 2016;39(4):1626-37.

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REFERENCES

[1]. Yun-cheng Lv, et al. Diosgenin Inhibits Atherosclerosis via Suppressing the MiR-19b-induced Downregulation of ATP-binding Cassette Transporter A1. Atherosclerosis, 2014, 240(1), 80-89.

[2]. Jeremy E. Chojnacki, et al. Bivalent ligands incorporating curcumin and diosgenin asmultifunctional compounds against Alzheimer's disease. Bioorganic & Medicinal Chemistry, 23 (2015) 7324–7331

[3]. Li F, et al. Diosgenin, a steroidal saponin, inhibits STAT3 signaling pathway leading to suppression of proliferation and chemosensitization of human hepatocellular carcinoma cells. Cancer Lett. 2010 Jun 28;292(2):197-207.

[4]. Wang X, et al. Effect of diosgenin on metabolic dysfunction: Role of ERβ in the regulation of PPARγ. Toxicol Appl Pharmacol. 2015 Dec 1;289(2):286-96.

[5]. Tohda C, et al. Diosgenin is an exogenous activator of $1,25D_3$-MARRS/Pdia3/ERp57 and improves Alzheimer's disease pathologies in 5XFAD mice. Sci Rep. 2012;2:535.

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