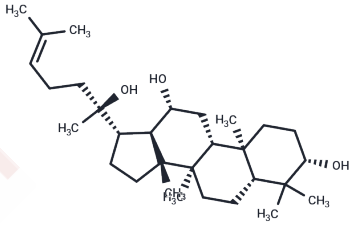
Data Sheet (Cat.No.T2799)

TargetMol

(20S)-Protopanaxadiol

Chemical Properties



CAS No. : 30636-90-9

Formula: C30H52O3

Molecular Weight: 460.73

Storage: Keep away from moisture,Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	(20S)-Protopanaxadiol (20-Epiprotopanaxadiol) (20-Epiprotopanaxadiol), an apoptosis inducer, is an aglycon metabolic derivative of the protopanaxadiol-type ginseng saponin.
Targets(IC50)	Apoptosis,Reactive Oxygen Species,P-gp,ROS
In vitro	Concentrations causing growth inhibition of 50% of cells (LC50) for the compounds (20S)-Protopanaxadiol is 23 μg/ml, for Int-407 cells. The the LC50 for (20S)-Protopanaxadiol is determined to be 24 μg/ml in Caco-2 cells. In the Int-407 cell line, (20S)-Protopanaxadiol produces great percentage of sub-G1 (apoptotic) cells(The Int-407 cell line is a human embryonic nonmalignant cell line originating from fetal tissue of approximately 2 months gestation, whereas Caco-2 is a human colon adenocarcinoma cell line). This response is attributed to differences in individual ginsenoside glycosylation and, thus, the hydrophobic-hydrophilic balance [2]. Incubation with (20S)-Protopanaxadiol also significantly reduces the viability of U251-MG and U87-MG cells in a dose- and time-dependent manner. The cytotoxic effect of (20S)-Protopanaxadiol is accompanied by reduced expression of cell adhesion proteins, including N-cadherin and integrin β1, which leads to reduced phosphorylation of focal adhesion kinase. Furthermore, incubation with (20S)-Protopanaxadiol reduces the expression of cyclin D1 and subsequently induces cell-cycle arrest at the G1 phase[3].
In vivo	Treatment with (20S)-Protopanaxadiol and PPT prior to immobilization stress increase the time spent in open arms and open arm entries in the elevated plus-maze (EPM) test. Treatment with (20S)-Protopanaxadiol potently suppresses immobilization stress-induced serum levels of corticosterone and interleukin (IL)-6 by the enzyme-linked immunosorbent assay. (20S)-Protopanaxadiol and PPT may exhibit the anxiolytic effect via γ-aminobutyrateA (GABAA) receptor(s) and serotonergic receptor(s), respectively, and (20S)-Protopanaxadiol may have an anti-inflammatory effect that is more potent than that of PPT[1].
Cell Research	Int-407 and Caco-2 cells are seeded at a concentration of 1×106 cells/mL in 24-well plates in separate experiments. Test ginsenosides (PPD, PPT, Rh2) are added to wells to the LC50 concentration determined previously from the MTT assays. The ginsenoside concentrations used for Int-407 cells are 23, 26, and 53 μg/mL, respectively, for PPD, PPT, and Rh2. In a similar experiment using Caco-2 cells, 24 μg/mL for both PPD and PPT

Cell Research	and 55 μg/mL for Rh2 is used. Untreated cells represented the control. Cells are incubated at 37℃ in a 5% CO2 humidified incubator for 24, 48, and 72 h. Cell-free supernatant are obtained by centrifugation(400 g) for 10 min, and the lactate dehydrogenase (LDH) assay is conducted as previously reported.(Only for Reference)

Solubility Information

Solubility	Ethanol: 31 mg/mL (67.28 mM),Sonication is recommended. DMSO: 103.1 mg/mL (223.78 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Corn Oil: 3.3 mg/mL (7.16 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1705 mL	10.8523 mL	21.7047 mL
5 mM	0.4341 mL	2.1705 mL	4.3409 mL
10 mM	0.217 mL	1.0852 mL	2.1705 mL
50 mM	0.0434 mL	0.217 mL	0.4341 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Oh HA, et al. Biol Pharm Bull. 2015, 38(2):331-5.
Chen Z, Ni R, Hu Y, et al.A natural protopanaxatriol from Panax notoginseng enhances osteosarcoma sensitivity to ferroptosis via ASCL4 upregulation.Journal of Functional Foods.2024, 122: 106488.
Popovich DG, et al. Can J Physiol Pharmacol. 2004, 82(3):183-90.
Wanderi C, et al. Anticancer Res. 2016, 36(3):925-32.