

Product Data Sheet

Product Name: Panaxydol

Cat. No.: GC39108

Chemical Properties

Cas. No. 72800-72-7

SMILES CCCCCCC[C@@H]1O[C@@H]1CC#CC#C[C@@H](C=C)O

Formula $C_{17}H_{24}O_2$ M.Wt 260.37

Solubility 5mg/mL in DMSO Storage Store at -20°C, protect from light

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 C9 cells

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

Product Data Sheet

C9 cells were cultured in DMEM medium containing 10% fetal bovine serum (FBS), 100U/ml penicillin and 100mg/ml streptomycin at 37°C in the presence of 5% CO₂. Cells were plated onto a 96-well plate at a density of 1×10^4 cells/ml for 24h, and were treated with different concentrations of Panaxydol (0, 20, 40, 60, and 80μM). After 48 hours, cell viability was analyzed.

Reaction Conditions 0, 20, 40, 60, and 80μM; 48h

Applications Panaxydol treatment significantly reduced the cell viability of C9 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models Wistar male rats

Preparation Method Wistar male rats, weighing 110 to 130g, were housed in temperature (23±2°C) and light-controlled (12:12-hour light-dark cycle) animal care facility. The rats were divided into three groups: the first group was the control group, the second group was the aristolochic acid-induced group (5mg/kg/day; intraperitoneal injection for 10 consecutive days), and the third group was the aristolochic acid+Panaxydol group (20mg/kg/day; oral administration for 20 consecutive days). After the experiment, the rats were sacrificed and the kidney tissues were collected for histological analysis.

Dosage form 20mg/kg/day for 20 days; p.o.

Applications Panaxydol treatment ameliorated the kidney damage induced by aristolochic acid in rats.

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

Product Data Sheet

References:

- [1] Hai J, Lin Q, Lu Y, et al. Growth inhibition and induction of differentiation by panaxydol in rat C6 glioma cells[J]. Neurological research, 2008, 30(1): 99-105.
- [2] Guo Y, Hu M, Ma J, et al. Protective effect of panaxydol against repeated administration of aristolochic acid on renal function and lipid peroxidation products via activating Keap1-Nrf2/ARE pathway in rat kidney[J]. Journal of Biochemical and Molecular Toxicology, 2021, 35(1): e22619.

Background

Panaxydol, a C17-polyacetylene from *Panax ginseng* roots, exhibits cytotoxic and antimicrobial activities [1]. Panaxydol increased albumin secretion and alkaline phosphatase activity, and correspondingly decreased alpha-fetoprotein (AFP) secretion, as well as decreased the expression of Id1 regulator and increased the protein levels of p21 and p-ERK1/2 in liver carcinoma cell lines [2]. Panaxydol has been widely used to induce cancer cell death and promote Caspase-3 activation and PKC δ cleavage [3].

In vitro, Panaxydol treatment for 48 hours significantly inhibited the proliferation of rat C6 glioma cells, with an IC₅₀ value of 39.5 μ M [4]. 10 μ M of Panaxydol incubation for 24 hours protected Schwann cells from hypoxia-induced cell death and increased the mRNA levels of neurotrophic factors NGF and BDNF [5]. Treatment with 50 μ g/ml Panaxydol for 2 hours significantly induced apoptosis in MCF-7 and Jurkat cells, promoting the release of mitochondrial cytochrome c and resulting in the loss of mitochondrial membrane potential [6].

In vivo, Panaxydol treatment via oral administration at a dose of 20mg/kg/day for 20 days significantly alleviated the kidney damage induced by aristolochic acid in rats, improved renal function, and promoted the expression levels of Nrf2, NQO1 and HO-1 [7]. Continuous intraperitoneal injection of 20mg/kg dose of Panaxydol for three consecutive days significantly inhibited lipopolysaccharide (LPS)-induced acute lung injury (ALI) and ferroptosis in mice [8].

References:

- [1] Knispel N, Ostrozhenkova E, Schramek N, et al. Biosynthesis of panaxynol and panaxydol in *Panax ginseng* [J]. Molecules, 2013, 18(7): 7686-7698.

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

Product Data Sheet

- [2] Wang Z J, Song L, Guo L C, et al. Induction of differentiation by panaxydol in human hepatocarcinoma SMMC-7721 cells via cAMP and MAP kinase dependent mechanism[J]. Yakugaku Zasshi, 2011, 131(6): 993-1000.
- [3] Yan Z, Yang R, Jiang Y, et al. Induction of apoptosis in human promyelocytic leukemia HL60 cells by panaxynol and panaxydol[J]. Molecules, 2011, 16(7): 5561-5573.
- [4] Hai J, Lin Q, Lu Y, et al. Growth inhibition and induction of differentiation by panaxydol in rat C6 glioma cells[J]. Neurological research, 2008, 30(1): 99-105.
- [5] Zhu H, Wang W J, Ding W L, et al. Effect of panaxydol on hypoxia-induced cell death and expression and secretion of neurotrophic factors (NTFs) in hypoxic primary cultured Schwann cells[J]. Chemico-biological interactions, 2008, 174(1): 44-50.
- [6] Kim J Y, Yu S J, Oh H J, et al. Panaxydol induces apoptosis through an increased intracellular calcium level, activation of JNK and p38 MAPK and NADPH oxidase-dependent generation of reactive oxygen species[J]. Apoptosis, 2011, 16(4): 347-358.
- [7] Guo Y, Hu M, Ma J, et al. Protective effect of panaxydol against repeated administration of aristolochic acid on renal function and lipid peroxidation products via activating Keap1-Nrf2/ARE pathway in rat kidney[J]. Journal of Biochemical and Molecular Toxicology, 2021, 35(1): e22619.
- [8] Li J, Lu K, Sun F, et al. Panaxydol attenuates ferroptosis against LPS-induced acute lung injury in mice by Keap1-Nrf2/HO-1 pathway[J]. Journal of Translational Medicine, 2021, 19(1): 96.

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