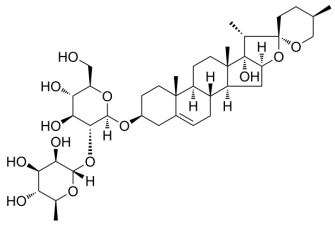
Polyphyllin VI

Cat. No.:	HY-N0816
CAS No.:	55916-51-3
Molecular Formula:	$C_{39}H_{62}O_{13}$
Molecular Weight:	738.9
Target:	Apoptosis; Pyroptosis
Pathway:	Apoptosis; Immunology/Inflammation
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (135.34 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3534 mL	6.7668 mL	13.5336 mL
	5 mM	0.2707 mL	1.3534 mL	2.7067 mL
	10 mM	0.1353 mL	0.6767 mL	1.3534 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1 mg/mL (1.35 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1 mg/mL (1.35 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1 mg/mL (1.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Polyphyllin VI, an active saponin, possess anti-cancer activities. Polyphyllin VI induces G2/M cell cycle arrest and triggers apoptosis. Polyphyllin VI induces caspase-1-mediated pyroptosis via the induction of ROS/NF-κB/NLRP3/GSDMD signal axis in non-small cell lung cancer[1][2][3].

In Vitro

Polyphyllin VI (0-16 μM; 48 h) significantly decreases the viability of A549, NCI-H1299 and HepaRG cells in a dose-dependent manner[1][2].

Polyphyllin VI (0.5-2 μM-1 μM; 24 h) significantly increases the percentage of A549, and NCI-H1299 cells in the G2/M stage in a

dose-dependent manner[1].
Polyphyllin VI (0-12 μM-1 μM; 24 h) arrests HepaRG cells at S stage [2].
Polyphyllin VI (0-6 μM-1 μM; 24 h) activates the NLRP3 inflammasome[3].
Polyphyllin VI (0-6 μM-1 μM; 24 h) induces pyroptosis via ROS/NF-κB pathway om A549 and NCI-H1299 cells[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1][3]

Cell Line:	A549, NCI-H1299, and HepaRG cells
Concentration:	0 μM, 2.5 μM, 5.0 μM, 7.5 μM, 10 μM, 12.5 μM (A549, NCI-H1299), 0 μM, 2 μM, 4.0 μM, 6.0 μM, 8.0 μM, 10.0 μM, 12.0 μM, 16.0 μM (HepaRG)
Incubation Time:	48 h (A549, NCI-H1299), 24 h and 48 h (HepaRG)
Result:	Showed the IC_{50} value in NCI-H1299 cells after 48h treatment was 1.87±0.09 μM, 1.59±0.12 μM in A549[1]. Demonstrated the reduction of HepaRG cell viability ranged from 88.90% to 1.07% after 24 h, and from 79.06% to 0.71% after 48 h[2].

Cell Viability Assay[1]

Cell Line:	A549, NCI-H1299 cells
Concentration:	0.5 μM, 1.0 μM, 2.0 μM
Incubation Time:	24 h
Result:	Showed those of A549 cells in G2/M phase were 25.14%±3.31%, 28.40%±4.63%, and 42.66%±1.30%, and NCI-H1299 cells were 27.99%±4.68%, 30.24%±3.61% and 38.51%±5.10% after treatment with 0.5, 1, and 2μM for 24 h, respectively.

Cell Cycle Analysis[2]

Cell Line:	HepaRG cells
Concentration:	0 μM, 2.0 μM, 4.0 μM, 6.0 μM, 8.0 μM, 12.0 μM
Incubation Time:	24 h
Result:	Resulted the ratios of cells in the S and G0/G1 phase changed from 23.62%±0.14% to 34.01%±0.32%, 66.88%±1.15% to 54.00%±0.71%, respectively.

Western Blot Analysis[3]

Cell Line:	A549, NCI-H1299 cells
Concentration:	0 μM, 3 μM, 4 μM, 5 μM, 6 μM
Incubation Time:	24 h
Result:	Resulted dose-dependently increasing the protein expression of NLRP3 and ASC, and the cleaved form of caspase-1, IL-1β, IL-18 and GSDMD in A549 and NCI-H1299 cells.

Immunofluorescence[3]

Cell Line:	A549, NCI-H1299 cells
Concentration:	0 μM, 3 μM, 4 μM, 5 μM, 6 μM

Incubation Time:	24 h
Result:	Resulted the expression of caspase-1 was significantly inhibited by N-acetyl-L-cysteine (NAC) in Polyphyllin VI -treated A549 and NCI-H1299 cells.

In Vivo

Polyphyllin VI (2-4 mg/kg; i.p.; five times a week for 4 weeks) inhibits the growth of lung cancer tumor xenografts[1].
Polyphyllin VI (2.5-10 mg/kg; i.p.; 10 consecutive days) activates NLRP3 inflammasome in A549-bearing athymic nude mice[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	A549 tumor xenografts subcutaneously inoculated into the right flank of the nude mice[1]
Dosage:	2 mg/kg, 3 mg/kg, 4 mg/kg
Administration:	Intraperitoneal Injection (i.p.)
Result:	Resulted the reduction of tumor volume to 25.63%, 41.71%, and 40.41%, respectively, after 2 mg/kg, 3 mg/kg and 4 mg/kg treatment.

Animal Model:	A549 tumor xenografts subcutaneously inoculated into the right flank of the nude mice[3]
Dosage:	2.5 mg/kg, 5 mg/kg, 10 mg/kg
Administration:	Intraperitoneal Injection (i.p.)
Result:	Showed the expression of NLRP3, caspase-1, IL-1β and GSDMD was increasing in a dose manner.

CUSTOMER VALIDATION

- Mediators Inflamm. 2022 Apr 21;2022:8007078.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Lin Z, et al. Anti-lung Cancer Effects of Polyphyllin VI and VII Potentially Correlate with Apoptosis In Vitro and In Vivo. Phytother Res. 2015 Oct;29(10):1568-76.

[2]. Liu Y, et al. Molecular Mechanisms of Apoptosis in HepaRG Cell Line Induced by Polyphyllin VI via the Fas Death Pathway and Mitochondrial-Dependent Pathway. Toxins (Basel). 2018 May 15;10(5). pii: E201.

[3]. Jin-Feng Teng, et al. Polyphyllin VI Induces Caspase-1-Mediated Pyroptosis via the Induction of ROS/NF-κB/NLRP3/GSDMD Signal Axis in Non-Small Cell Lung Cancer. Cancers (Basel). 2020 Jan 13;12(1):193.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA