Alphitolic acid

Cat. No.: HY-N2855

CAS No.: 19533-92-7

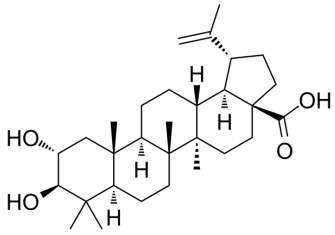
Molecular Formula: $C_{30}H_{48}O_4$

Molecular Weight: 472.7

Target: Apoptosis; Autophagy; TNF Receptor; Akt; NF-κB

Pathway: Apoptosis; Autophagy; PI3K/Akt/mTOR; NF-κB

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (105.78 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1155 mL	10.5775 mL	21.1551 mL
	5 mM	0.4231 mL	2.1155 mL	4.2310 mL
	10 mM	0.2116 mL	1.0578 mL	2.1155 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 5 mg/mL (10.58 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Alphitolic acid (Aophitolic acid) is an anti-inflammatory triterpene could found in quercus aliena. Alphitolic acid blocks Akt–NF-κB signaling to induce apoptosis. Alphitolic acid induces autophagy. Alphitolic acid has anti-inflammatory activity and down-regulates the NO and TNF-α production. Alphitolic acid can be used for cancer and inflammation research[1][2][3].

In Vitro

Alphitolic acid (Aophitolic acid) (0-30 μM; 72 hours; HSC-3, SCC2095, and SCC4 cells) has anti-proliferative activity in oral cancer cells in a dose-dependent manner, induces apoptosis and blocks Akt–NF-κB signaling[1].
Alphitolic acid (Aophitolic acid) (0-25 μM; 3-72 hours; SCC4 cells) induces autophagy with increases the expression of autophagosome marker LC3B-II and two autophagyregulatory proteins[1].
Alphitolic acid (Aophitolic acid) (0-25 μM; 72 hours; SCC4 cells) increases p53 phosphorylation and expression, decreases in the expression of the oncogenic E3 ligase MDM2[1].
Alphitolic acid (Aophitolic acid) (0-25 μM; 72 hours; RAW 264.7 macrophages) has anti-inflammatory activity and down-regulates the NO and TNF-α production with IC_{50} values of 17.6 and 22.7 μM, respectively[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	HSC-3, SCC2095 and SCC4 cells
Concentration:	0, 10, 15, 20, 25 and 30 μM
Incubation Time:	72 hours
Result:	Suppressed the proliferation of SCC4 and SCC2095 cells with IC_{50} values of 12 and 15 μM, respectively.

Apoptosis Analysis[1]

Cell Line:	SCC4 cells
Concentration:	0, 10, 20 and 30 μM
Incubation Time:	72 hours
Result:	Increased the percentage of apoptotic cells from 11.8% to 25.1% in a dose-dependent manner.

Western Blot Analysis[1]

Cell Line:	SCC4 cells
Concentration:	0, 10, 15 and 20 μM
Incubation Time:	72 hours
Result:	Decreased the expression of phosphorylation of Akt and its downstream substrates, including p70S6K, S6, and IκBα. Down-regulated the expression of NF-κB and its downstream target gene product Bcl-2.

Western Blot Analysis[1]

Cell Line:	SCC4 cells
Concentration:	0, 10, 15, 20 and 25 μM
Incubation Time:	3, 6, 12, 24, 48 and 72 hours
Result:	Increased autophagosome marker LC3B-II in a dose- and time-dependent manner. Increased the expression of autophagy-related protein 7 (Atg7).

In Vivo

Alphitolic acid (Aophitolic acid) (47-756 μg/ear; i.h.; adult male CF-1 mice) has anti-inflammatory activity in vivo[3].

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

Animal Model:	Adult male CF-1 mice[3]
Dosage:	47, 94, 330, 378 and 756 μg/ear
Administration:	subcutaneous injection
Result:	Had anti-inflammatory activity with an ED_{50} of 0.11 and 0.20 μM in a dose-dependent.

CUSTOMER VALIDATION

- Mol Immunol. 2023 Jun 23;160:44-54.

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REFERENCES

[1]. Bai LY, et, al. Alphitolic acid, an anti-inflammatory triterpene, induces apoptosis and autophagy in oral squamous cell carcinoma cells, in part, through a p53-dependent pathway. 2015 Jan 22; 18(2015):368-378.

[2]. Raju R, et, al. Anti-Inflammatory Chemical Profiling of the Australian Rainforest Tree Alphitonia petriei (Rhamnaceae). Molecules. 2016 Nov 11;21(11):1521.

[3]. Goity LE, et, al. An HPLC-UV and HPLC-ESI-MS based method for identification of antiinflammatory triterpenoids from the extracts of Ugni molinae. 2013 Jan; 12(1):108-116.

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