Agnuside

Cat. No.: HY-N2518

CAS No.: 11027-63-7

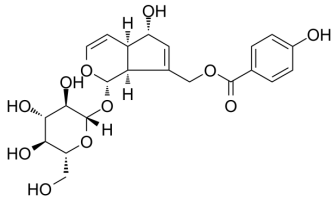
Molecular Formula: $C_{22}H_{26}O_{11}$

Molecular Weight: 466.44

Target: NO Synthase; COX; Caspase; HIF/HIF Prolyl-Hydroxylase; ASCT

Pathway: Immunology/Inflammation; Apoptosis; Metabolic Enzyme/Protease

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (214.39 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1439 mL	10.7195 mL	21.4390 mL
	5 mM	0.4288 mL	2.1439 mL	4.2878 mL
	10 mM	0.2144 mL	1.0719 mL	2.1439 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: ≥ 2.5 mg/mL (5.36 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.36 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.36 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Agnuside is used in the study of asthma, inflammation, and angiogenic diseases. Agnuside is an orally active compound that can be extracted from Vitex negundo[1][2][3][4].

IC_{50} & Target

EP

In Vitro

Agnuside (100 μM, 12-20 h) decreases the expression of iNOS, COX-2 and IL-8 proteins, and has anti-inflammatory effect in RAW264.7 and HT-29 cells stimulated by LPS (1 μg/mL/100 ng/mL) [2].
Agnuside (0.1-2500 ng/mL, 20-96 h) promotes angiogenesis in HUVEC by promoting cell proliferation (EC_{50}= 1.376 μg/mL) in a time- and dose-dependent manner[3].

Agnuside (3 μM, 4 h) significantly reduces the levels of caspase-1, ASC, NLRP3, HIF-1α, IL-1β and IL-18 to inhibit inflammation in LPS (10 μg/ml) -stimulated fibroblast-like synoviocytes (FLSs)[4].

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

In Vivo

Agnuside (6.25 mg/kg; Oral administration; Single dose) reduces the levels of allergic inflammatory mediators in a dose-dependent manner and can inhibit allergic inflammation in Balb/C mice[1].Agnuside (6.25 mg/kg; Oral administration; Single dose) can inhibit autophagy in allergic asthma in Balb/C mice [1].Agnuside (6.25 mg/kg; Oral administration; single dose) can reduce synovitis and fibrosis in knee osteoarthritis (KOA) in MIA-induced KOA mice[4].

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

Animal Model:	Balb/C female mice model [1]
Dosage:	30 mg/kg, 60 mg/kg
Administration:	Oral gavage (p.o.); Single dose;
Result:	Decreased the expression of LC3B and increased the expression of Beclin1/p62 (LC3B and Beclin1/p62 are autophagy markers). Decreased the levels of IgE and IL-4/ IL-10 in a dose-dependent manner.(IgE and IL-4/ IL-10 are allergic inflammatory mediators)

Animal Model:	KAO rat model[4]
Dosage:	6.25 mgMonosodium iodoacetate (MIA): 1 mg
Administration:	Oral gavage (p.o.); Single dose
Result:	Alleviated the degree of local hypoxia in the synovial tissue of rats and significantly reduced the level of pro-fibrotic substances in the synovial tissue. Inhibited the accumulation of HIF-1α and activation of NLRP3 inflammasome.

REFERENCES

[1]. Tirpude NV, et al. Agnuside mitigates OVA-LPS induced perturbed lung homeostasis via modulating inflammatory, autophagy, apoptosis-fibrosis response and myeloid lineages in mice model of allergic asthma. Int Immunopharmacol. 2022 May;106:108579.

[2]. Le DD, et al. Iridoid derivatives from Vitex rotundifolia L. f. with their anti-inflammatory activity. Phytochemistry. 2023 Jun;210:113649.

[3]. Pillarisetti P, Myers KA. Identification and characterization of agnuside, a natural proangiogenic small molecule. Eur J Med Chem. 2018 Dec 5;160:193-206.

[4]. Zhang L, et al. Agnuside Alleviates Synovitis and Fibrosis in Knee Osteoarthritis through the Inhibition of HIF-1α and NLRP3 Inflammasome. Mediators Inflamm. 2021 Mar 16;2021:5534614.

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