Verbascoside

Cat. No.: HY-N0021

CAS No.: 61276-17-3

Molecular Formula: $C_{29}H_{36}O_{15}$

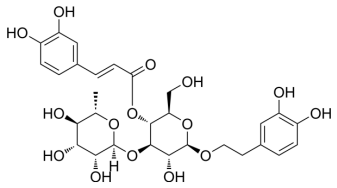
Molecular Weight: 624.59

Target: PKC; Apoptosis; Bacterial; HSV

Pathway: Epigenetics; TGF-beta/Smad; Apoptosis; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (160.11 mM)

H_2O : ≥ 100 mg/mL (160.11 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.6011 mL	8.0053 mL	16.0105 mL
5 mM	0.3202 mL	1.6011 mL	3.2021 mL
10 mM	0.1601 mL	0.8005 mL	1.6011 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: ≥ 2.08 mg/mL (3.33 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.33 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.33 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Verbascoside is isolated from Acanthus mollis, acts as an ATP-competitive inhibitor of PKC, with an IC_{50} of 25 μM, and has antitumor, anti-inflammatory and antineuropathic pain activity.

IC_{50} & Target

PKC

25 μM (IC_{50})

In Vitro	Verbascoside acts as an ATP-competitive inhibitor of PKC, with an IC_{50} of 25 μM. Verbascoside shows K_is of 22 and 28 μM with respect to ATP and histone, respectively. Verbascoside has potent antitumor activity against L-1210 cells, with an IC_{50} of 13 μM[1]. Verbascoside (5, 10 μM) suppresses 2,4-dinitrochlorobenzene (DNCB)-induced T cell costimulatory factors CD86 and CD54, proinflammatory cytokines, and NFκB pathway activation in THP-1 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Verbascoside (1%) reduces the overall scratching behavior incidence as well as the severity of the skin lesions in 2,4-dinitrochlorobenzene (DNCB)-induced atopic dermatitis (AD) mice model. Verbascoside also blocks DNCB-induced expression of proinflammatory cytokine TNF-α, IL-6, and IL-4 mRNA in skin lesions[2]. Verbascoside (50, 100 mg/kg, i.p.) does not modify chronic constriction injury (CCI)-induced cold allodynia. Verbascoside (200 mg/kg, i.p.) decreases hyper-sensitivity to cold stimulus, acetone, on day 3 in rats. Verbascoside also significantly reduces behavioral changes associated with neuropathy. Moreover, Verbascoside decreases Bax and increases Bcl-2 on day 3[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	The lymphocytic mouse leukemia L1210 cells (ATCC, CCL 219) are plated sparsely at 10^4 cells per well in 24-well cluster plates in Dulbecco's modified Eagle medium containing 10% fetal calf serum, 4 mM glutamine, 100 U/mL penicillin, 100 μg/mL streptomycin sulfate, and Verbascoside (solubilized in DMSO). After a 2-day incubation period at 37°C in a humidified atmosphere (5% CO_2 in air), growth is monitored by counting cell numbers in a Coulter-counter. IC_{50} values are calculated on the basis of the linear regression lines established for each compound tested[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Rats[2] To induce atopic dermatitis (AD)-like symptoms, 2,4-dinitrochlorobenzene (DNCB) is used. Briefly, the dorsal hair of the mice is removed using an electronic clipper 2 days before DNCB treatment. An application of 200 μL of 1% DNCB (in acetone:olive oil = 4:1) is made to the shaved dorsal skin for sensitization. The repeated challenge is performed on the same site with 0.2% DNCB once every 3 days for about 2 weeks. The mice are divided into 4 groups (n = 6 per group): (1) vehicle-treated controls, (2) DNCB-treated only, (3) 1% Verbascoside (in acetone:olive oil 4:1)-treated only, and (4) DNCB + 1% Verbascoside-treated group[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell. 2021 Apr 1;184(7):1693-1705.e17.
- J Ethnopharmacol. 2024 May 6:331:118272.
- FOOD BIOPROD PROCESS. 2023 Feb 11.
- Cell Cycle. 2024 Apr 25:1-18.
- Pancreatology. 2024 Apr 26.

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REFERENCES

[1]. Herbert JM, et al. Verbascoside isolated from Lantana camara, an inhibitor of protein kinase C. J Nat Prod. 1991 Nov-Dec;54(6):1595-600.

[2]. Li Y, et al. Verbascoside Alleviates Atopic Dermatitis-Like Symptoms in Mice via Its Potent Anti-Inflammatory Effect. Int Arch Allergy Immunol. 2018;175(4):220-230.

[3]. Amin B, et al. The Effect of Verbascoside in Neuropathic Pain Induced by Chronic Constriction Injury in Rats. Phytother Res. 2016 Jan;30(1):128-35.

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