Isochlorogenic acid A

Cat. No.: HY-N0056

CAS No.: 2450-53-5

Molecular Formula: $C_{25}H_{24}O_{12}$

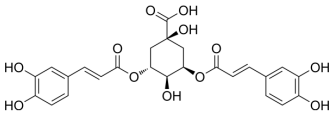
Molecular Weight: 516.45

Target: Reactive Oxygen Species; HBV; Endogenous Metabolite; HIV; Bacterial

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; 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 : ≥ 50 mg/mL (96.81 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent, Mass	1 mg	5 mg	10 mg
1 mM	1.9363 mL	9.6815 mL	19.3630 mL
5 mM	0.3873 mL	1.9363 mL	3.8726 mL
10 mM	0.1936 mL	0.9681 mL	1.9363 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 (4.84 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.84 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.84 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Isochlorogenic acid A (3,5-Dicaffeoylquinic acid) is a natural phenolic acid with anti-mutagenicity, anti-HBV, anti-HIV, anti-oxidant, anti-bacterial, and anti-inflammatoryy activities[1].

In Vitro

Isochlorogenic acid A inhibits the aminoacylation activity of LeuRS from Giardia lamblia (GlLeuRS), with an IC_{50} of 5.82 μg/mL[1].

Isochlorogenic acid A (5-100 μM, 48 h) increases melanin content in B16 cells, and increases TYR proteins activity[4].

Isochlorogenic acid A shows DPPH (IC_{50}=4.26 μg/mL), ABTS radical scavenging activity[6].
Isochlorogenic acid A (0-250 μg/mL, 24 h) inhibits nitric oxide production in LPS-stimulated RAW 264.7 cells[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[4]

Cell Line:	B16 cells
Concentration:	48 h
Incubation Time:	5, 50, and 100 μM
Result:	Increased tyrosinase (TYR), TRP1, TRP2, p-MITF, and total MITF protein expressions. Induced the phosphorylation of Akt at Thr308.

In Vivo

Isochlorogenic acid A (5 and 10 mg/kg, p.o., once a day for 3 weeks) ameliorates cognitive impairment induced by TMT in ICR male mice[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	TMT-induced ICR male mice[5]
Dosage:	5 and 10 mg/kg
Administration:	p.o., once a day for 3 weeks
Result:	Improved spatial memory and learning ability of mice in MWM test. Reduced the TMT-induced increased AChE activity. Reduced the MDA content compared to the TMT group.

CUSTOMER VALIDATION

- Cell Biosci. 2023 Nov 14;13(1):210.
- J Funct Foods. 2021, 104400.
- Food Biosci. 2023 Oct, 55, 103069.
- Food Sci Biotechnol. 2018 Jun 8;27(5):1439-1444.
- Pharmacological Research-Modern Chinese Medicine. 2023 Dec, 9, 100340.

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REFERENCES

[1]. Mamat N, et al. Isochlorogenic acid A promotes melanin synthesis in B16 cell through the β-catenin signal pathway. Acta Biochim Biophys Sin (Shanghai). 2017 Sep 1;49(9):800-807.

[2]. Kang JY, et al. Reversal of Trimethyltin-Induced Learning and Memory Deficits by 3,5-Dicaffeoylquinic Acid. Oxid Med Cell Longev. 2016;2016:6981595.

[3]. Hong, S., et al. Antioxidant and anti-inflammatory activities of 3,5-dicaffeoylquinic acid isolated from Ligularia fischeri leaves. Food Sci Biotechnol 24, 257–263 (2015).

[4]. Zhang YH, et al. 3,5-Dicaffeoylquinic acid isolated from Artemisia argyi and its ester derivatives exert anti-leucyl-tRNA synthetase of Giardia lamblia (GlLeuRS) and potential anti-giardial effects. Fitoterapia. 2012 Oct;83(7):1281-5.

[5]. Malarz J, et al. Long-term cultured hairy roots of chicory-a rich source of hydroxycinnamates and 8-deoxylactucin glucoside. Appl Biochem Biotechnol. 2013 Dec;171(7):1589-601.

[6]. Wan C, et al. Isolation and identification of phenolic compounds from Gynura divaricata leaves. Pharmacogn Mag. 2011 Apr;7(26):101-8.

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