Danshensu

Cat. No.: HY-N1913

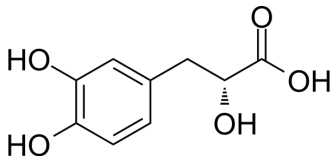
CAS No.: 76822-21-4

Molecular Formula: $C_9H_{10}O_5$

Molecular Weight: 198

Target: Keap1-Nrf2; Apoptosis; NF-κB; Reactive Oxygen Species; SARS-CoV

Pathway: NF-κB; Apoptosis; Immunology/Inflammation; Metabolic Enzyme/Protease; 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

H_2O : 5 mg/mL (25.25 mM; Need ultrasonic)
DMSO : < 1 mg/mL (insoluble or slightly soluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.0505 mL	25.2525 mL	50.5051 mL
5 mM	1.0101 mL	5.0505 mL	10.1010 mL
10 mM	0.5051 mL	2.5253 mL	5.0505 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 10 mg/mL (50.51 mM); Clear solution; Need ultrasonic and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Danshensu (Dan shen suan A), an orally active phenolic compound, can induce Nrf2/HO-1 activation and inhibition of NF-κB pathway. Danshensu reduces reactive oxygen species (ROS) production, upregulates antioxidant defense mechanism and inhibits intrinsic apoptotic pathway. Danshensu displays a potent antiviral activity against SARS-CoV-2 with EC_{50} of 0.97 μM. Danshensu has anti-oxidation, anti-apoptosis, anti-lung inflammatory and has the potential for COVID-19, cardiovascular and cerebrovascular diseases research[1][2][3].

In Vitro

Danshensu (Dan shen suan A) potently inhibits the entry of SARS-CoV-2 S protein-pseudo-typed virus (SARS-CoV-2 S) into ACE2-overexpressed HEK-293T cells (IC_{50}=0.31 μM) and Vero-E6 cell (IC_{50}=4.97 μM)[1].
Danshensu (0-100 μM; for 24 h) at higher concentrations (50 and 100 μM) causes significant reduction in migration and invasion of both FaDu and Ca9-22 cells[2].

Danshensu (0-100 μM; for 24 h)dose-dependently reduced the phosphorylation of ERK and p38 phosphorylation in FaDu cell [2].

Danshensu (0-100 μM; for 24, 48, 72 h) does not have any cytotoxic effect on human oral cancer cells[2].

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

Cell Migration Assay [2]

Cell Line:	FaDu and Ca9-22 cells
Concentration:	25, 50, and 100 μM
Incubation Time:	24 h
Result:	At higher concentrations (50 and 100 μM) caused significant reduction in migration and invasion of both FaDu and Ca9-22 cells.

Western Blot Analysis[2]

Cell Line:	FaDu and Ca9-22 cells
Concentration:	25, 50, and 100 μM
Incubation Time:	24 h
Result:	Phosphorylation of ERK reduced dose-dependently after 24 h in FaDu cell. Caused significant reduction in p38 phosphorylation.

In Vivo

Danshensu (Dan shen suan A; 25, 50, 100 mg/kg; oral administration daily for 7 continuous days or i.v. once) before SARS-CoV-2 S infection dose-dependently alleviates the pathological alterations in mice infected with SARS-CoV-2 S[1].

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

Animal Model:	Adult BALB/c mice (male, 6-8 weeks, 20±2 g)[1]
Dosage:	25, 50, 100 mg/kg
Administration:	Oral administration (daily for 7 continuous days) or i.v. (once)
Result:	Could prevent SARS-CoV-2 S protein-induced acute lung inflammation. Ameliorated inflammatory cytokines in serum and lung tissue.

CUSTOMER VALIDATION

- Phytomedicine. 2023 Mar 5;113:154743.

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REFERENCES

[1]. Chen Yu, et al. Danshensu attenuates cisplatin-induced nephrotoxicity through activation of Nrf2 pathway and inhibition of NF-κB. Biomed Pharmacother. 2021 Oct:142:111995.

[2]. Wei Wang, et al. Danshensu alleviates pseudo-typed SARS-CoV-2 induced mouse acute lung inflammation. Acta Pharmacol Sin. 2022 Apr;43(4):771-780.

[3]. V Bharath Kumar, et al. Sodium Danshensu Inhibits Oral Cancer Cell Migration and Invasion by Modulating p38 Signaling Pathway. Front Endocrinol (Lausanne). 2020 Sep 30:11:568436.

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