SZABO SCANDIC

Part of Europa Biosite

# Produktinformation

- Forschungsprodukte & Biochemikalien
- Zellkultur & Verbrauchsmaterial
- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!

## Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

## Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand


**SZABO-SCANDIC HandelsgmbH**

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

# Emodin

**Cat. No.:** HY-14393

**CAS No.:** 518-82-1

**Molecular Formula:** $C_{15}H_{10}O_5$

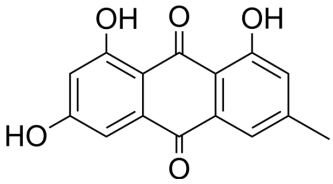
**Molecular Weight:** 270.24

**Target:** Casein Kinase; Autophagy; SARS-CoV; 11β-HSD

**Pathway:** Cell Cycle/DNA Damage; Stem Cell/Wnt; Autophagy; Anti-infection; Metabolic Enzyme/Protease

**Storage:**

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




## SOLVENT & SOLUBILITY

**In Vitro**

Acetone : 10.87 mg/mL (40.22 mM; Need ultrasonic)
DMSO : 5.41 mg/mL (20.02 mM; Need ultrasonic)
Ethanol : < 1 mg/mL (ultrasonic) (insoluble)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 3.7004 mL | 18.5021 mL | 37.0041 mL |
| | 5 mM | 0.7401 mL | 3.7004 mL | 7.4008 mL |
| | 10 mM | 0.3700 mL | 1.8502 mL | 3.7004 mL |

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

**In Vivo**

1. Add each solvent one by one: 0.5% MC >> 0.5% Tween-80
   Solubility: 10 mg/mL (37.00 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 0.5% CMC-Na/saline water
   Solubility: 3.33 mg/mL (12.32 mM); Suspened solution; Need ultrasonic

## BIOLOGICAL ACTIVITY

**Description**

Emodin (Frangula emodin), an anthraquinone derivative, is an anti-SARS-CoV compound. Emodin blocks the SARS coronavirus spike protein and angiotensin-converting enzyme 2 (ACE2) interaction[1]. Emodin inhibits casein kinase-2 (CK2). Anti-inflammatory and anticancer effects[2]. Emodin is a potent selective 11β-HSD1 inhibitor with the $IC_{50}$ of 186 and 86 nM for human and mouse 11β-HSD1, respectively. Emodin ameliorates metabolic disorder in diet-induced obese mice[3].

| $IC_{50}$ & Target | | | | |
|---|---|---|---|---|
| | SARS-CoV | CK2α Wild-type<br>1.4 μM ($IC_{50}$, at ATP | CK2α Wild-type<br>5.9 μM ($IC_{50}$, at ATP | mouse 11β-HSD1<br>86 nM ($IC_{50}$) |

| | | | |
|---|---|---|---|
| | concentration is 10 μM) | concentration is 50 μM) | |
| human 11β-HSD1<br>186 nM ($IC_{50}$) | | | |

**In Vitro**

Emodin (10-400 μM) blocks the binding of S protein to ACE2 in a dose-dependent manner with the $IC_{50}$ value of 200 μM[1].
Emodin (5-50 μM) inhibits the S protein-pseudotyped retrovirus infectivity in a dose-dependent manner. Emodin blocks the SARS-CoV S protein binding to Vero E6 cells[1].
Emodin inhibits casein kinase-2 (CK2) with $IC_{50}$s of 5.9, 30.0, and 7.1 μM for CK2α Wild-type, Ile174Ala mutant, and His160Ala mutant at ATP concentration is 50 μM, respectively. The $IC_{50}$s are 1.40 and 38.00 μM for CK2α Wild-type, and Val66Ala mutant at ATP concentration is 10 μM[2].
Emodin exhibits low inhibitory activity against mouse and human 11β-hydroxysteroid dehydrogenase type 2 (11β-HSD2), with an $IC_{50}$ higher than 1 mM, indicating that Emodin is more than 5000-fold selective for the human and mouse 11β-HSD1 enzymes over the type 2 isoenzyme[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

| | |
|---|---|
| Cell Line: | Vero E6 cells transfected with the plasmid encoding ACE2 |
| Concentration: | 0, 5, 25, 50 μM |
| Incubation Time: | 24 hours |
| Result: | Vero cells treated with 50 μM remained 82.4±3.8% viability, the anti-SARS-CoV activity was not due to toxicity. |

**In Vivo**

Emodin (single oral administration of 100 or 200 mg/kg) inhibits 11β-HSD1 activity in normal C57BL/6J male mice[3].
Emodin (100 mg/kg; oral administration; b.i.d.) improves insulin sensitivity and lipid metabolism, and lowers blood glucose and hepatic PEPCK, and glucose-6-phosphatase mRNA in diet-induced obese (DIO) mice[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | C57BL/6J male mice[3] |
| Dosage: | 100 or 200 mg/kg |
| Administration: | Acute administered p.o. ; Two hours later, the mice were killed by cervical dislocation, |
| Result: | Significantly inhibited liver 11β-HSD1 enzymatic activity by 17.6 and 31.3% and mesenteric fat 11β-HSD1 enzymatic activity by 21.5 and 46.7% at 100 or 200 mg/kg, respectively. |

| | |
|---|---|
| Animal Model: | DIO mice (C57BL/6J male mice were fed a formulated research diet)[3] |
| Dosage: | 100 mg/kg |
| Administration: | Oral gavage; twice per day; for 35 days |
| Result: | Reduced fasting glucose concentrations to 77.2% of the vehicle control mice after 7 days of treatment, and these remained significantly lower throughout the treatment period.<br>Exhibited a significant reduction in blood glucose levels at all time-points following oral glucose challenge after 24 days of treatment.<br>Evoked a significantly greater reduction in blood glucose values 40 and 90 min after insulin injection after 28 days of treatment.<br>The serum insulin level was also significantly reduced, to 66.2% of control mice, after 35 days of treatment. |

| | |
|---|---|
| | Improved the lipid profiles. The serum triglyceride and total cholesterol levels were significantly reduced by 19.3 and 12.5% after 35 days of treatment, respectively.<br>Caused a 22.7% reduction of non-esterified free fatty acid (NEFA) level.<br>Lowered body weight and appetite from day 18 of the treatment; their body weights were reduced by 13.9% at the end of treatment. |

## CUSTOMER VALIDATION

- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- Acta Pharmacol Sin. 2021 Jan;42(1):108-114.
- Phytother Res. 2024 Jan 10.
- Fertil Steril. 2020 May;113(5):1067-1079.e5.
- Int Immunopharmacol. 2020 Dec 23;91:107277.

See more customer validations on www.MedChemExpress.com

## REFERENCES

[1]. Tin-Yun Ho, et al. Emodin blocks the SARS coronavirus spike protein and angiotensin-converting enzyme 2 interaction. Antiviral Res. 2007 May;74(2):92-101.

[2]. Ying Feng, et al. Emodin, a natural product, selectively inhibits 11beta-hydroxysteroid dehydrogenase type 1 and ameliorates metabolic disorder in diet-induced obese mice. Br J Pharmacol. 2010 Sep;161(1):113-26.

[3]. Stefania Sarno, et al. Toward the rational design of protein kinase casein kinase-2 inhibitors. Pharmacol Ther. Feb-Mar 2002;93(2-3):159-68.



Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA