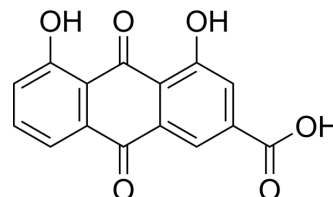


Rhein

Cat. No.:	HY-N0105												
CAS No.:	478-43-3												
Molecular Formula:	C ₁₅ H ₈ O ₆												
Molecular Weight:	284.22												
Target:	Autophagy; Reactive Oxygen Species; Bacterial; Apoptosis												
Pathway:	Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Anti-infection; Apoptosis												
Storage:	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	2 years											
	-20°C	1 year											



SOLVENT & SOLUBILITY

In Vitro

0.1 M NaOH : ≥ 12.5 mg/mL (43.98 mM)
 DMSO : 12.17 mg/mL (42.82 mM; Need ultrasonic and warming)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.5184 mL	17.5920 mL	35.1840 mL
	5 mM	0.7037 mL	3.5184 mL	7.0368 mL
	10 mM	0.3518 mL	1.7592 mL	3.5184 mL

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

In Vivo

- Add each solvent one by one: 0.5% CMC-Na/saline water
 Solubility: 10 mg/mL (35.18 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: 1.67 mg/mL (5.88 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Rhein is an anthraquinone compound with anti-inflammatory, antioxidant, and anti-cancer effects^[1].

In Vitro

Rhein (0-80 μM, 72 h) inhibits the viability of NB4 cells in a dose-dependent manner^[2].
 Rhein (5 μM, 72 h) increases semi-adherent, macrophage-like cells, and expression of CD11b, CD14, CCR-1 and CCR-2, and increases ROS production and phagocytosis in ATRA-activated NB4 cells^[2].
 Rhein (5 μM, 72 h) induces NB4 cell death by activating apoptosis and inhibiting the mTOR pathway^[2].
 Rhein (50-200 μM, 48 h) inhibits angiogenesis in MCF-7 and MDA-MB-435 cells^[4].

Rhein (0-50 μ M, 24 h) inhibits HUVEC proliferation, migration, invasion, and tube formation (inhibits VEGF165, EGF in supernatant and HIF-1 α in nuclear extract)^[4].

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

RT-PCR^[2]

Cell Line:	acute promyelocytic leukemia (APL) cell (NB4 cells)
Concentration:	5 μ M
Incubation Time:	72 h
Result:	Increased mRNA expression of PU.1, C/EBPA, and C/EBPE. Increased ATRA activated mRNA expression of CCR1 and CCR2.

Western Blot Analysis^[2]

Cell Line:	NB4 cells
Concentration:	0-40 μ M
Incubation Time:	48 and 72 h
Result:	Increased the expression of cleaved caspase-3, Bax. Decreased the expression of Bcl-xl, procaspase-3.

In Vivo

Rhein (10-40 mg/kg, i.g.) protects against Acetaminophen (HY-66005)-induced hepatic and renal toxicity in rats^[3].

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

Animal Model:	2.5 g/kg APAP (i.g.) induced rats ^[3]
Dosage:	10, 20 and 40 mg/kg
Administration:	i.g.
Result:	Ameliorated histopathological damage of liver and kidney. Reduced GPT, GOT, UREA and CREA levels and ROS production. Restored NO, MDA, GSH contents.

CUSTOMER VALIDATION

- Small Methods. 2020, 2000483.
- Br J Pharmacol. 2021 Dec 9.
- Biochem Biophys Res Commun. 2018 Sep 3;503(1):297-303.
- J Orthop Surg Res. 2023 Jul 6;18(1):485.
- Neurosci Lett. 2021 Jun 3;136002.

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REFERENCES

[1]. Hou ML, et al. The Drug-Drug Effects of Rhein on the Pharmacokinetics and Pharmacodynamics of Clozapine in Rat Brain Extracellular Fluid by In Vivo Microdialysis. J

Pharmacol Exp Ther. 2015 Oct;355(1):125-34.

[2]. Heo SK, et al. Rhein augments ATRA-induced differentiation of acute promyelocytic leukemia cells. Phytomedicine. 2018 Oct 1;49:66-74.

[3]. Zhao YL, et al. Rhein protects against acetaminophen-induced hepatic and renal toxicity. Food Chem Toxicol. 2011 Aug;49(8):1705-10.

[4]. Fernand VE, et al. Rhein inhibits angiogenesis and the viability of hormone-dependent and -independent cancer cells under normoxic or hypoxic conditions in vitro. Chem Biol Interact. 2011 Jul 15;192(3):220-32.

Caution: Product has not been fully validated for medical applications. For research use only.

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