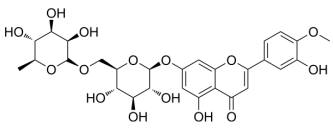
Diosmin

Cat. No.:	HY-N0178
CAS No.:	520-27-4
Molecular Formula:	$C_{28}H_{32}O_{15}$
Molecular Weight:	608.54
Target:	Aryl Hydrocarbon Receptor
Pathway:	Immunology/Inflammation
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (164.33 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.6433 mL	8.2164 mL	16.4328 mL
	5 mM	0.3287 mL	1.6433 mL	3.2866 mL
	10 mM	0.1643 mL	0.8216 mL	1.6433 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.11 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.5 mg/mL (4.11 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Diosmin is a flavonoid found in a variety of citrus fruits and also an agonist of the aryl hydrocarbon receptor (AhR).

IC_{50} & Target

AhR[1]

In Vitro

Treatment with Diosmin causes a dose dependent increase in the amount of adducts formed (up to a 7-fold increase in adducts at 5 μM Diosmin). At 5 μM, Diosmin increases the cytotoxicity of 7,12-dimethylbenz(a)anthracene, shifting the IC_{50} from an estimated 1.2 μM? to 400 nM. Diosmin is not cytotoxic in itself at the concentrations tested. Diosmin causes an increase in CYP1A1 activity in MCF-7 cells in a time- and dose-dependent fashion. Diosmin causes a dose-dependent increase in CYP1A1 mRNA after 24 h of incubation, causes a long-lasting increase in CYP1A1 mRNA accumulation that reaches its peak after 48 h of incubation[1].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Diosmin significantly decreases the malondialdehyde (MDA) levels and increases the activities of total-superoxide dismutase (T-SOD), glutathione peroxidase (GSH-Px), and catalase (CAT)? in the retina of rats compare with the ischemia group ($P<0.05$), and suppresses the ischemia/reperfusion (I/R)-induced reduction in the a- and b-wave amplitudes of the electroretinograms (ERGs) ($P<0.05$). The thickness of the entire retina, inner nuclear layer, inner plexiform layer, and outer retinal layer and the number of cells in the ganglion cell layer are significantly less after I/R injury ($P<0.05$), and Diosmin remarkably ameliorates these changes on retinal morphology. Diosmin also attenuates the I/R-induced loss of retinal ganglion cells (RGCs) of the rat retina ($P<0.05$)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	MCF-7 cells are plated at 25,000 cells/well in 24-well plates. After 24 h, the medium is changed to medium containing 5 μM Diosmin. After an additional 24 h, the medium is again changed with medium containing 5 μM Diosmin. After 3 days, the total cell growth is assessed by sulforhodamine[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Healthy male Wistar rats (n=112) weighing 180 to 200 g each are used in this study. The animals are randomly assigned to the following 4 groups, which include combinations of the ischemia/reperfusion (I/R) injury model or sham injury with the i.g. administration of Diosmin or vehicle solution: sham+vehicle (SV) group, sham+Diosmin (SD) group, model+vehicle (MV) group, and model+Diosmin (MD) group. For intragastric administration, 5 mL of 2% Diosmin per kilogram weight of the rat, or the same volume of vehicle solution, is administered intragastrically 30 min before the onset of ischemia, and then daily after I/R injury until the animals are sacrificed. Using an overdose of anesthesia, 8 rats from each group are sacrificed 24 h after I/R injury, and their eyeballs harvested for determination of the malondialdehyde (MDA) level and the activities of total-superoxide dismutase (T-SOD), glutathione peroxidase (GSH-Px), and catalase (CAT). At 7 days post-I/R injury, electroretinograms (ERGs) are recorded in 6 rats per group. Meanwhile, 6 rats in each group are randomly chosen for retrograde labeling of retinal ganglion cells (RGCs) , and the remaining 8 rats from each group are histopathologically examined[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Theranostics. 2021; 11(18):8797-8812.
- Research Square Print. 2023 Mar 1.

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REFERENCES

[1]. Ciolino HP, et al. Diosmin and diosmetin are agonists of the aryl hydrocarbon receptor that differentially affectcytochrome P450 1A1 activity. Cancer Res. 1998 Jul 1;58(13):2754-60.

[2]. Tong N, et al. Diosmin protects rat retina from ischemia/reperfusion injury. J Ocul Pharmacol Ther. 2012 Oct;28(5):459-66.

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

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