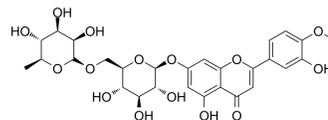


Diosmin

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)

Concentration	Mass		
	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

- 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
- 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).

IC₅₀ & 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 IC₅₀ 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 μ M Diosmin. After an additional 24 h, the medium is again changed with medium containing 5 μ M 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].

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CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Theranostics. 2021; 11(18):8797-8812.
- BMC Complement Med Ther. 2024 Jan 9;24(1):29.
- 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 affect cytochrome 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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