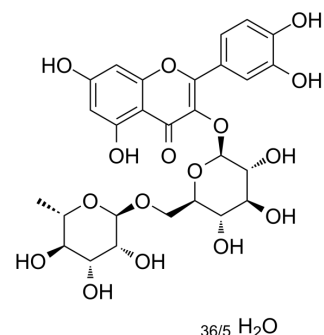


## Rutin hydrate

Cat. No.:	HY-N0148A
CAS No.:	207671-50-9
Molecular Formula:	C <sub>27</sub> H <sub>30</sub> O <sub>16</sub> ·36/5H <sub>2</sub> O
Molecular Weight:	713.04
Target:	Amyloid-β; Autophagy; Endogenous Metabolite; Apoptosis
Pathway:	Neuronal Signaling; Autophagy; Metabolic Enzyme/Protease; Apoptosis
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

In Vitro	DMSO : 50 mg/mL (70.12 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	1.4024 mL	7.0122 mL	14.0245 mL
		5 mM	0.2805 mL	1.4024 mL	2.8049 mL
10 mM		0.1402 mL	0.7012 mL	1.4024 mL	
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: 1% CMC-Na/saline water Solubility: 3.33 mg/mL (4.67 mM); Suspended solution; Need ultrasonic				
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (3.51 mM); Clear solution				
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (3.51 mM); Clear solution				
	4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (3.51 mM); Clear solution				

### BIOLOGICAL ACTIVITY

Description	Rutin (Rutoside) hydrate is a flavonoid found in many plants and shows a wide range of biological activities including anti-inflammatory, antidiabetic, antioxidant, neuroprotective, nephroprotective, hepatoprotective and reducing Aβ oligomer activities. Rutin hydrate can cross the blood brain barrier. Rutin hydrate attenuates vancomycin-induced renal tubular cell apoptosis via suppression of apoptosis, mitochondrial dysfunction, and oxidative stress <sup>[1][2][3]</sup> .
In Vivo	Rutin hydrate ameliorates cadmium chloride-induced spatial memory loss and neural apoptosis in rats by enhancing levels of acetylcholine, inhibiting JNK and ERK1/2 activation and activating mTOR signaling <sup>[4]</sup> .

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

## PROTOCOL

### Animal Administration <sup>[1]</sup>

#### Rats<sup>[1]</sup>

(1) A control group receives of 0.01 g/mL carboxymethylcellulose (CMC) dissolved in distilled water; (2)  $\alpha$ -tocopherol acetate treated group: control rats receive  $\alpha$ -tocopherol (120 IU/rat) diluted in 0.1 mL of coconut oil; (3) Rutin hydrate treated control group (control + Rutin hydrate): control rats receive Rutin hydrate (100 mg/kg); (4) CdCl<sub>2</sub> intoxicated group receives CdCl<sub>2</sub> at a final dose of 5 mg/kg to induce neurotoxicity; (5) CdCl<sub>2</sub> + Rutin hydrate treated group (CdCl<sub>2</sub> + Rutin hydrate) receives CdCl<sub>2</sub> (5 mg/kg) and receives a coincided dose of Rutin hydrate (100 mg/kg body weight); (6) CdCl<sub>2</sub> + Rutin hydrate +  $\alpha$ -tocopherol acetate-treated group receives CdCl<sub>2</sub> (5 mg/kg) and receives concomitant dose of Rutin hydrate (100 mg/kg) in conjugation with  $\alpha$ -tocopherol acetate (120 IU/rat) that is diluted in 0.1 mL of coconut oil. All treatments are given by orogastric gavage with a polyethylene catheter PE 190 daily for 30 days<sup>[1]</sup>.

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

## CUSTOMER VALIDATION

- Adv Sci (Weinh). 2022 Oct 18;e2203088.
- Food Chem. 2022: 134807.
- Food Chem. 16 December 2021, 131872.
- Phytomedicine. 2023 Feb 4;112:154700.
- Antioxidants (Basel). 2023 Nov 7, 12(11), 1974.

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## REFERENCES

- [1]. Ghorbani A. Mechanisms of antidiabetic effects of flavonoid rutin. Biomed Pharmacother. 2017;96:305-312.
- [2]. Habtemariam S. Rutin as a Natural Therapy for Alzheimer's Disease: Insights into its Mechanisms of Action. Curr Med Chem. 2016;23(9):860-873.
- [3]. Xu PX, et al. Rutin improves spatial memory in Alzheimer's disease transgenic mice by reducing A $\beta$  oligomer level and attenuating oxidative stress and neuroinflammation. Behav Brain Res. 2014;264:173-180.
- [4]. Abdel-Aleem GA, et al. Rutin hydrate ameliorates cadmium chloride-induced spatial memory loss and neural apoptosis in rats by enhancing levels of acetylcholine, inhibiting JNK and ERK1/2 activation and activating mTOR signalling. Arch Physiol Biochem. 2018;124(4):367-377.

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

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