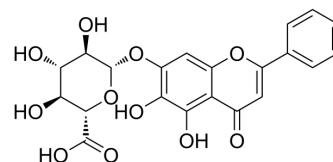


## Baicalin

Cat. No.:	HY-N0197		
CAS No.:	21967-41-9		
Molecular Formula:	C <sub>21</sub> H <sub>18</sub> O <sub>11</sub>		
Molecular Weight:	446.36		
Target:	NF-κB; Autophagy; HIV		
Pathway:	NF-κB; Autophagy; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	1 year
		-20°C	6 months



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (224.03 mM)  
 H<sub>2</sub>O : 0.1 mg/mL (0.22 mM; Need ultrasonic)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.2403 mL	11.2017 mL	22.4034 mL
	5 mM	0.4481 mL	2.2403 mL	4.4807 mL
	10 mM	0.2240 mL	1.1202 mL	2.2403 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: 20 mg/mL (44.81 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Baicalin, as a flavonoid glycoside, is an allosteric carnitine palmityl transferase 1 (CPT1) activator. Baicalin reduces the expression of NF-κB<sup>[1][2][3]</sup>.

#### IC<sub>50</sub> & Target

NF-κB

Autophagy

<b>In Vitro</b>	<p>Baicalin protects against ischemia-reperfusion injury (IRI) by altering the production of various mediators, including reactive oxygen species (ROS), Toll-like receptor (TLR)2 and TLR4, NF-κB, Bax, and Bcl-2. Baicalin treatment inhibits the increased expression of the proinflammatory cytokines TLR2/4, MyD88, p-NF-κB, and p-IκB, as well as increase the expression of IκB protein, an NF-κB inhibitor<sup>[1]</sup>.</p> <p>Cell viability is determined by MTT assay. Compared with control cells, cell viability is significantly decreased in SH-SY5Y cells treated with thrombin. Pre-treatment with Baicalin (5, 10, 20 μM) increases cell viability in a dose-dependent manner compared with cells treated thrombin alone<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>Baicalin pretreatment dose-dependently protects against a loss of renal function, with the two higher doses (10 and 100 mg/kg) significantly decreasing Scr and blood urea nitrogen (BUN) concentrations. Tissue injury, as assessed using a 0-3 point scoring system, is lower for the Baicalin treated groups than for the ischemia-reperfusion (IR)+saline group. Compared with the sham group, malondialdehyde (MDA) content is only slightly up-regulated and the SOD activity is only slightly down-regulated in rats treated with 10 and 100 mg/kg Baicalin, indicating that Baicalin abrogates the increase in oxidative stress following reperfusion<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

<b>Cell Assay</b> <sup>[2]</sup>	<p>SH-SY5Y cell lines are cultured in RPMI-1640 medium supplemented with 15% fetal bovine serum at 37°C in an air atmosphere containing 95% air and 5% CO<sub>2</sub> with a saturated humidity. Upon a confluence of 60~70%, the SH-SY5Y cells are divided into: (i) control group, incubated in RPMI-1640 medium; (ii) thrombin group, which is subject to thrombin induction (40 U/L) for 6 h based on our pre-experiment; and (iii) Baicalin groups, which are treated by Baicalin (5 μM, 10 μM, or 20 μM) for 2 h before induction of thrombin. Cell viability is measured using MTT assay. Briefly, 15 μL of the MTT solution (5 mg/mL) is added to each well and incubated for 4 h at 37°C. After removing the supernatant, 80 μL DMSO are added into each well. The absorbance is measured at 492 nm using a microplate reader. All experiments are performed in triplicate<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>Animal Administration</b> <sup>[1]</sup>	<p>Rats<sup>[1]</sup></p> <p>Male Wistar rats weighing 200-250 g are used. Rats are randomly divided into five groups of six rats each: (i) sham group; (ii) IR+saline group; (iii) IR+Baicalin (1 mg/kg) group; (iv) IR+Baicalin (10 mg/kg) group; and (v) IR+Baicalin (100 mg/kg) group. Renal IRI is induced by clamping the left renal artery for 45 min plus a right nephrectomy. Rats are anesthetized through an intraperitoneal injection of pentobarbital sodium (40 mg/kg body weight). After a median abdominal incision, the left renal arteries are clamped for 45 min with serrefine. After clamp removal, adequate restoration of blood flow is checked before abdominal closure. The right kidney is then removed. Sham-operated animals underwent the same surgical procedure without clamping<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Mol Metab. 2024 May 4:101953.
- Phytomedicine. 2024 Jan 7, 155337.
- Phytomedicine. 2023 Oct 22, 155162.
- Antioxidants (Basel). 2024 Jan 17;13(1):115.
- Ecotoxicol Environ Saf. 2024 Jul 1:281:116661.

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## REFERENCES

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- [1]. Lin M, et al. The protective effect of Baicalin against renal ischemia-reperfusion injury through inhibition of inflammation and apoptosis. *BMC Complement Altern Med*. 2014 Jan 13;14:19.
- [2]. Ju XN, et al. Baicalin protects against thrombin induced cell injury in SH-SY5Y cells. *Int J Clin Exp Pathol*. 2015 Nov 1;8(11):14021-7.
- [3]. Dai J, et al. Chemoproteomics reveals baicalin activates hepatic CPT1 to ameliorate diet-induced obesity and hepatic steatosis. *Proc Natl Acad Sci U S A*. 2018;115(26):E5896-E5905.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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