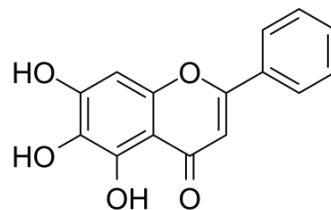


## Baicalein

<b>Cat. No.:</b>	HY-N0196
<b>CAS No.:</b>	491-67-8
<b>Molecular Formula:</b>	C <sub>15</sub> H <sub>10</sub> O <sub>5</sub>
<b>Molecular Weight:</b>	270.24
<b>Target:</b>	Xanthine Oxidase; Influenza Virus; Ferroptosis
<b>Pathway:</b>	Metabolic Enzyme/Protease; Anti-infection; Apoptosis
<b>Storage:</b>	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : ≥ 100 mg/mL (370.04 mM)					
	* "≥" means soluble, but saturation unknown.					
	<b>Preparing Stock Solutions</b>	<b>Solvent</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
		<b>Concentration</b>				
		<b>1 mM</b>		3.7004 mL	18.5021 mL	37.0041 mL
<b>5 mM</b>			0.7401 mL	3.7004 mL	7.4008 mL	
	<b>10 mM</b>		0.3700 mL	1.8502 mL	3.7004 mL	
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: 2.5 mg/mL (9.25 mM); Suspended solution; Need ultrasonic and warming					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: 2.5 mg/mL (9.25 mM); Clear solution; Need ultrasonic					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: 2.5 mg/mL (9.25 mM); Clear solution; Need ultrasonic and warming					

### BIOLOGICAL ACTIVITY

<b>Description</b>	Baicalein (5,6,7-Trihydroxyflavone) is a xanthine oxidase inhibitor with an IC <sub>50</sub> value of 3.12 mM.
<b>IC<sub>50</sub> &amp; Target</b>	IC <sub>50</sub> : 3.12 mM (xanthine oxidase) <sup>[1]</sup>
<b>In Vitro</b>	Baicalein suppresses mitogen induced T cell proliferation and cytokine secretion in vitro. Pre-treatment with baicalein significantly suppresses Con A or anti-CD3/CD28 mAb induced proliferation as well as cytokine secretion at 25 μM. Baicalein treatment induces DNA binding of NF-κB but inhibits thioredoxin activity in the nuclear compartment <sup>[2]</sup> . Baicalein suppresses proliferation, migration, and invasion of MDA-MB-231 cells in a time- and dose-dependent manner. Baicalein

significantly decreases the expression of SATB1 in MDA-MB-231 cells. Baicalein also downregulates the expression of Wnt1 and  $\beta$ -catenin proteins and transcription level of Wnt/ $\beta$ -catenin-targeted genes<sup>[3]</sup>.

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

#### In Vivo

Baicalein suppresses induction of graft versus host disease but does not inhibit homeostatic proliferation of T-cells in mice. This observation clearly shows potent anti-inflammatory activity of baicalein in vivo<sup>[2]</sup>. Rats treated with baicalein are protected against an increase in heart to body weight ratio, plasma level of brain natriuretic peptides, intraventricular septum thickness, myocardial collagen volume of left ventricle (all  $P < 0.05$ , respectively). The antifibrotic effects of baicalein are further illustrated by the suppressed expression of left ventricle pro-collagens I and III accompanied by the decreased expression of 12-lipoxygenase, and by reduced expression and activity of matrix metalloproteinase 9 and extracellular signal-regulated kinases. Baicalein can inhibit cardiac fibrosis in hypertensive rats<sup>[4]</sup>.

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## PROTOCOL

#### Cell Assay <sup>[3]</sup>

MTT assay is conducted to evaluate the effect of baicalein on proliferation of breast cancer cells. MDA-MB-231 cells are routinely digested, collected, and then seeded in 96-well plates at a density of  $8 \times 10^3$  cells/well. After incubation for 12-24 hours, cells are treated with 0, 20, 40, 60, 80, 100, and 120  $\mu\text{M}$  baicalein according to their experimental grouping and then incubated at 37°C for 24, 48, and 72 hours<sup>[3]</sup>.

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#### Animal Administration <sup>[2][4]</sup>

Rats: Baicalein is suspended in 1% methylcellulose. Rats are treated with baicalein suspension via oral gavage. SHR and WKY rats are divided into 4 groups (n=8 per group): 12-week treatment with high-dose (200 mg/kg/day) or low-dose (50 mg/kg/day) group; and 4-week treatment with high-dose or low-dose group. The 12-week and 4-week negative control groups of SHR and WKY rats (n=8 per group) receive vehicle while positive control groups (Val group, n=8 per group) receive valsartan (20 mg/kg/day) for comparison<sup>[4]</sup>.

Mice: To study the in vivo anti-inflammatory efficacy of baicalein, graft-versus-host disease (GVHD) model is used. Splenic lymphocytes from C57BL/6 mice are incubated with baicalein in vitro (25  $\mu\text{M}$ , 4h) and adoptively transferred to immune-compromised Balb/c mice<sup>[2]</sup>.

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

## CUSTOMER VALIDATION

- Exp Cell Res. 2020 May 3:112054.
- Biochem Biophys Res Commun. 2018 Sep 3;503(1):297-303.

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## REFERENCES

- [1]. Shieh DE, et al. Antioxidant and free radical scavenging effects of baicalein, baicalin and wogonin. *Anticancer Res.* 2000 Sep-Oct;20(5A):2861-5.
- [2]. Patwardhan RS, et al. Baicalein exhibits anti-inflammatory effects via inhibition of NF- $\kappa$ B transactivation. *Biochem Pharmacol.* 2016 May 15;108:75-89.
- [3]. Ma X, et al. Baicalein suppresses metastasis of breast cancer cells by inhibiting EMT via downregulation of SATB1 and Wnt/ $\beta$ -catenin pathway. *Drug Des Devel Ther.* 2016 Apr 18;10:1419-41.

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[4]. Kong EK, et al. A novel anti-fibrotic agent, baicalein, for the treatment of myocardial fibrosis in spontaneously hypertensive rats. Eur J Pharmacol. 2011 May 11;658(2-3):175-81.

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

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