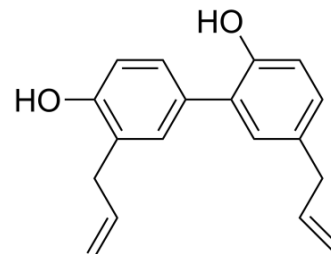


## Honokiol

<b>Cat. No.:</b>	HY-N0003		
<b>CAS No.:</b>	35354-74-6		
<b>Molecular Formula:</b>	C <sub>18</sub> H <sub>18</sub> O <sub>2</sub>		
<b>Molecular Weight:</b>	266.33		
<b>Target:</b>	Akt; ERK; Autophagy; HCV		
<b>Pathway:</b>	PI3K/Akt/mTOR; MAPK/ERK Pathway; Stem Cell/Wnt; Autophagy; Anti-infection		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 50 mg/mL (187.74 mM)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent		1 mg	5 mg	10 mg
	Concentration	Mass			
	1 mM		3.7547 mL	18.7737 mL	37.5474 mL
	5 mM		0.7509 mL	3.7547 mL	7.5095 mL
	10 mM		0.3755 mL	1.8774 mL	3.7547 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (9.39 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (9.39 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (9.39 mM); Clear solution
- Add each solvent one by one: corn oil  
Solubility: 16.67 mg/mL (62.59 mM); Clear solution; Need ultrasonic

### BIOLOGICAL ACTIVITY

#### Description

Honokiol is a bioactive, biphenolic phytochemical that possesses potent antioxidative, anti-inflammatory, antiangiogenic, and anticancer activities by targeting a variety of signaling molecules. It inhibits the activation of Akt and enhances the phosphorylation of ERK1/ERK2. Honokiol can readily cross the blood brain barrier.

IC <sub>50</sub> & Target	Akt	ERK1	ERK2	Autophagy
<b>In Vitro</b>	<p>Honokiol (0, 12.5, 25 and 50 <math>\mu</math>M) inhibits the growth of GBM cells and induces apoptosis, with IC<sub>50</sub> of appr against 30 <math>\mu</math>M DBTRG-05MG cell. Honokiol-induced apoptosis of GBM cells is associated with the downregulation of the Rb protein and cleavage of PARP and Bcl-x (S/L). Honokiol (50 <math>\mu</math>M) increases the level of autophagy markers in GBM cells<sup>[1]</sup>. Honokiol has anticancer effect, and the IC<sub>50</sub> values with MDA-MB-231, MDA-MB-468, and MDA-MB-453 cell lines is 16.99 <math>\pm</math> 1.28 <math>\mu</math>M, 15.94 <math>\pm</math> 2.35 <math>\mu</math>M and 20.11 <math>\pm</math> 3.13 <math>\mu</math>M respectively. Honokiol (3, 10 <math>\mu</math>M) produces significant inhibition on the spheroid number and spheroid sizes in the clonogenic assay<sup>[2]</sup>. Honokiol (0.1-1.0 <math>\mu</math>M) specifically inhibits washed human platelet aggregation stimulated by collagen, but not by other agonists. honokiol (0.6 and 1.0 <math>\mu</math>M) can concentration-dependently inhibit the collagen-induced ATP-release reaction in washed human platelets. Honokiol specifically inhibits platelet aggregation and the phosphorylation of Lyn, PLC<math>\gamma</math>2, and PKC stimulated with convulxin. Honokiol (5, 10 <math>\mu</math>M) significantly inhibits convulxin-stimulated MAPKs and Akt activation<sup>[3]</sup>. Honokiol (10, 20 <math>\mu</math>M) increases ERK1/2 phosphorylation in a dose-dependent manner depending on CaMK II activation<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>			
<b>In Vivo</b>	<p>Honokiol-NM (40 mg/kg, p.o.) produces superior anticancer effects, and the PCNA, Cyclin D1 and cleaved caspase 3 expressions are 2.12, 1.92 and 1.68-fold significantly altered in this treated group<sup>[2]</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>In cytotoxicity assays, 10,000 cells/well are added to 96 wells plates and incubated overnight, thereafter cells are treated with different concentrations of Honokiol dissolved in dimethylsulphoxide (DMSO). Since Honokiol is not soluble in aqueous solvents, for in vitro studies Honokiol is dissolved in DMSO. To study the possible effect of DMSO on cells, solvent (DMSO) control is used at highest concentration of &lt;0.1%. After 72 h treatment, cells are fixed and cell viability is measured by crystal violet staining (0.05%).</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>Animal Administration</b> <sup>[2]</sup>	<p>For anticancer in vivo studies, the MDA-MB-231 cells (2 million) are injected into mammary fat tissue. Two weeks after the tumor cell injections, palpable tumors are observed in mammary tissues, which is an indication of tumor formation. Then drug treatment either in free form or in nanomicellar forms is given orally at the dose of 40 and 80 mg/kg daily. The drug treatment is continued for 4 weeks, and the tumor volumes and body weights are recorded weekly. After 4 weeks of treatment, animals are sacrificed; final tumor volumes and weights are measured. These tumors are used for western blot and immunohistochemical analysis. For western blot experiments, tumor tissues are stored at -80°C till the analysis is done. For IHC, tumors are fixed in formal saline.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Aging Cell. 2021 Jan 15;e13306.
- Int J Biol Macromol. 2020 Mar 15;147:79-88.
- Biomed Pharmacother. 2019 Jun 5;117:109058.
- PLoS Negl Trop Dis. 2019 Aug 20;13(8):e0007681.
- Int J Mol Med. 2020 Jan;45(1):186-194.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

---

## REFERENCES

---

- [1]. Chang KH, et al. Honokiol-induced apoptosis and autophagy in glioblastoma multiforme cells. *Oncol Lett.* 2013 Nov;6(5):1435-1438.
- [2]. Godugu C, et al. Honokiol nanomicellar formulation produced increased oral bioavailability and anticancer effects in triple negative breast cancer (TNBC). *Colloids Surf B Biointerfaces.* 2017 Jan 23;153:208-219
- [3]. Lee TY, et al. Honokiol as a specific collagen receptor glycoprotein VI antagonist on human platelets: Functional ex vivo and in vivo studies. *Sci Rep.* 2017 Jan 5;7:40002
- [4]. Zhai H, et al. Honokiol-induced neurite outgrowth promotion depends on activation of extracellular signal-regulated kinases (ERK1/2). *Eur J Pharmacol.* 2005 Jun 1;516(2):112-7.
- 

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA