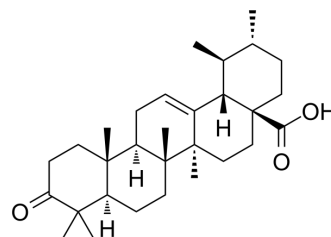


## Ursonic acid

Cat. No.:	HY-N1486
CAS No.:	6246-46-4
Molecular Formula:	C <sub>30</sub> H <sub>46</sub> O <sub>3</sub>
Molecular Weight:	454.68
Target:	Apoptosis; Endogenous Metabolite; NF-κB
Pathway:	Apoptosis; Metabolic Enzyme/Protease; NF-κB
Storage:	<div> <div>Powder</div> <div>-20°C    3 years</div> <div>4°C    2 years</div> </div> <div> <div>In solvent</div> <div>-80°C    2 years</div> <div>-20°C    1 year</div> </div>



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 50 mg/mL (109.97 mM; ultrasonic and warming and heat to 80°C)  
H<sub>2</sub>O : < 0.1 mg/mL (insoluble)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		2.1993 mL	10.9967 mL	21.9935 mL
	5 mM		0.4399 mL	2.1993 mL	4.3987 mL
	10 mM		0.2199 mL	1.0997 mL	2.1993 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 (5.50 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (5.50 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Ursolic acid is a naturally occurring triterpenoid that has orally active. Ursolic acid induces the apoptosis of human cancer cells through multiple signaling pathways. Ursolic acid has anti-inflammatory and anticarcinogenic activity<sup>[1][2]</sup>.

#### In Vitro

Ursolic acid (12.5-50 μM, 48 h) induce apoptosis in T24 human bladder cancer cells in a dose-dependent manner by inhibiting AKT/NF-κB signaling<sup>[1]</sup>.  
Ursolic acid (50 μM, 2-4 h) increases the expression of p53 and caspase-3 and decreases bcl-2 gene expression in B16F-10 melanoma cells<sup>[2]</sup>.  
Ursolic acid (10-50 μM, 48 h) inhibits the production of TNF-α, IL-1β, IL-6 and GM-CSF in B16F-10 melanoma cells<sup>[2]</sup>.  
Ursolic acid (50 μM, 2 h) inhibits the NF-κB subunits (p65, p50 and c-Rel) and nuclear translocation of c-fos, ATF-2 and CREB-

1 in B16F-10 melanoma cells<sup>[2]</sup>.

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

#### Cell Proliferation Assay<sup>[1]</sup>

Cell Line:	T24 human bladder cancer cells
Concentration:	12.5-50 $\mu$ M
Incubation Time:	48 h
Result:	Inhibited cell proliferation in a dose-dependent manner.

#### Western Blot Analysis<sup>[1]</sup>

Cell Line:	T24 human bladder cancer cells
Concentration:	12.5-50 $\mu$ M
Incubation Time:	48 h
Result:	Inhibited the anti-apoptotic signaling (pAkt1, pI $\kappa$ B $\alpha$ , NF- $\kappa$ Bp65 and Bcl-2). Activated pro-apoptotic signaling (caspase-3).

#### In Vivo

Ursolic acid (5-20 mg/kg, p.o., twice a day, 30 days) protects against ethanol-mediated experimental liver injury in adult male albino rats<sup>[3]</sup>.

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

Animal Model:	Adult male albino rats <sup>[3]</sup>
Dosage:	5-20 mg/kg
Administration:	p.o., twice a day, 30 days
Result:	Increased weight gain and food intake. Decreased AST and ALT activities and total and indirect bilirubin levels. Increased direct bilirubin and levels of non-enzymic antioxidants (GSH, ascorbic acid and $\alpha$ -tocopherol). Decreased lipid peroxidation.

## REFERENCES

[1]. Saravanan R, et al. Protective effect of ursolic acid on ethanol-mediated experimental liver damage in rats. Life Sci. 2006 Jan 11;78(7):713-8.

[2]. Gai, L., Cai, N., Wang, L., Xu, X. & Kong, X. Ursolic acid induces apoptosis via Akt/NF-kappaB signaling suppression in T24 human bladder cancer cells. Molecular medicine reports 7, 1673-1677, doi:10.3892/mmr.2013.1364 (2013).

[3]. Manu, K. A. & Kuttan, G. Ursolic acid induces apoptosis by activating p53 and caspase-3 gene expressions and suppressing NF-kappaB mediated activation of bcl-2 in B16F-10 melanoma cells. International immunopharmacology 8, 974-981, doi:10.1016/j.intimp.2008.02.013 (2008).

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

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