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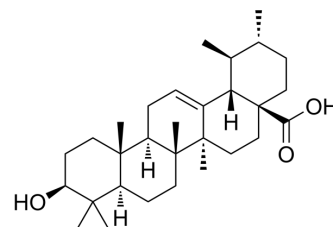
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Ursolic acid

Cat. No.:	HY-N0140
CAS No.:	77-52-1
Molecular Formula:	C ₃₀ H ₄₈ O ₃
Molecular Weight:	456.7
Target:	Autophagy; Endogenous Metabolite
Pathway:	Autophagy; Metabolic Enzyme/Protease
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 33.33 mg/mL (72.98 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
		1 mM		2.1896 mL	10.9481 mL	21.8962 mL
		5 mM		0.4379 mL	2.1896 mL	4.3792 mL
		10 mM		0.2190 mL	1.0948 mL	2.1896 mL
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 50% HP-β-CD in saline Solubility: 6.67 mg/mL (14.60 mM); Suspended solution; Need ultrasonic					
	2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (5.47 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Ursolic acid (Prunol) is a natural pentacyclic triterpenoid carboxylic acid, exerts anti-tumor effects and is an effective compound for cancer prevention and therapy.
In Vitro	Ursolic acid induces phosphorylation of AMP-activated protein kinase alpha (AMPKα) and suppressed the protein expression of DNA methyltransferase 1 (DNMT1) in the dose-dependent manner^[1]. The combination of Ursolic acid (0.5 μM) and Leucine (10 μM) prove to be the most effective in promoting myogenic differentiation. The combination of Ursolic acid and Leucine significantly increase CK activity than treatment with either agent alone. The level of myosin heavy chain, a myogenic differentiation marker protein, is also enhanced by the combination of Ursolic acid and Leucine^[2]. Ursolic acid efficiently induces apoptosis, possibly via the downregulation of B-cell lymphoma 2 (Bcl-2), the upregulation of

	Bcl-2-associated X protein and the proteolytic activation of caspase-3. Furthermore, the activation of p38 mitogen-activated protein kinase and c-Jun N-terminal kinase is increased by the administration of ursolic acid. In addition, Ursolic acid significantly suppresses the invasive phenotype of the SNU-484 cells and significantly decreases the expression of matrix metalloproteinase (MMP)-2^[3]. Ursolic acid (UA) potently induces the apoptosis of gastric cancer SGC-7901 cells. Further mechanistic studies revealed that the ROCK1/PTEN signaling pathway plays a critical role in Ursolic acid-mediated mitochondrial translocation of cofilin-1 and apoptosis^[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Ursolic acid treatment markedly improves the survival of septic rats, and attenuated CLP-induced lung injury, including reduction of lung wet/dry weight ratio, infiltration of leukocytes and proteins, myeloperoxidase activity, and malondialdehyde content. In addition, Ursolic acid significantly decreases the serum levels of tumor necrosis factor-α, interleukin-6, and interleukin-1β, inhibits the expression of inducible nitric oxide synthase and cyclooxygenase-2 in the lung, which are involved in the productions of nitric oxide and prostaglandin E2^[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Brain Behav Immun. 2020 Nov;90:108-137.
- Cell Death Dis. 2018 Aug 28;9(9):847.
- Food Chem. 2022: 134807.
- Int Immunopharmacol. 2022 Oct 14;113(Pt A):109321.
- Cancers (Basel). 2023 Apr 20, 15(8), 2378.

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REFERENCES

- [1]. Yie Y, et al. Ursolic acid inhibited growth of hepatocellular carcinoma HepG2 cells through AMPK α -mediated reduction of DNA methyltransferase 1. Mol Cell Biochem. 2014 Dec 30.
- [2]. Kim M, et al. The combination of ursolic acid and leucine potentiates the differentiation of C2C12 murine myoblasts through the mTOR signaling pathway. Int J Mol Med. 2015 Mar;35(3):755-62.
- [3]. Kim ES, et al. Ursolic acid inhibits the invasive phenotype of SNU-484 human gastric cancer cells. Oncol Lett. 2015 Feb;9(2):897-902.
- [4]. Li R, et al. Ursolic Acid Promotes Apoptosis of SGC-7901 Gastric Cancer Cells through ROCK/PTEN Mediated Mitochondrial Translocation of Cofilin-1. Asian Pac J Cancer Prev. 2014;15(22):9593-7.
- [5]. Hu Z, et al. Ursolic acid improves survival and attenuates lung injury in septic rats induced by cecal ligation and puncture. J Surg Res. 2014 Oct 22. pii: S0022-4804(14)00967-6.

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

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