Benzyl alcohol

Cat. No.: HY-B0892

CAS No.: 100-51-6

Molecular Formula: C_7H_8O

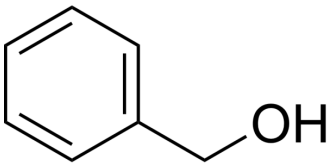
Molecular Weight: 108.14

Target: Cytochrome P450; Toll-like Receptor (TLR)

Pathway: Metabolic Enzyme/Protease; Immunology/Inflammation

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : ≥ 100 mg/mL (924.73 mM)

H_2O : 20 mg/mL (184.95 mM; Need ultrasonic)

DMSO : ≥ 1.8 mg/mL (16.65 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	9.2473 mL	46.2364 mL	92.4727 mL
5 mM	1.8495 mL	9.2473 mL	18.4945 mL
10 mM	0.9247 mL	4.6236 mL	9.2473 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 33.33 mg/mL (308.21 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (23.12 mM); Clear solution
3. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (23.12 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (23.12 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Benzyl alcohol is an aromatic alcohol, a colorless liquid with a mild aromatic odor. Benzyl alcohol is an inhibitor of P450 enzyme. Benzyl alcohol mediated Toll-Like Receptor 4 to reduce the inflammatory response of liver injury in mice[1][2][3].

IC_{50} & Target	Microbial Metabolite
In Vitro	Benzyl alcohol (10-80 mM) regulates cyclic AMP synthesis in MDCK cells by increasing the membrane fluidity of intact renal epithelial cells[1]. Benzyl alcohol (0-46 mM, 48 h) inhibits the hepatotoxicity of APAP by inhibiting cytochrome P450 enzyme activity in the primary liver of mice[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Benzyl alcohol (270 mg/kg, intraperitoneal injection, 0.5-24 h) can reduce the liver injury induced by acetaminophen[2]. Benzyl alcohol (270 mg/kg, intraperitoneal injection, 3-24 h) decreases inflammasome activation in a TLR4-dependent manner[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	APAP-induced liver injury model in mice[2]
Dosage:	270 mg/kg
Administration:	i.p.
Result:	Attenuated the increase in ALT activities and reduced areas of necrosis at both 6 h and 24 h. Reduced APAP metabolic activation and parameters of oxidant stress. Reduced APAP-induced mitochondrial dysfunction.

REFERENCES

[1]. Friedlander G, et al. Benzyl alcohol increases membrane fluidity and modulates cyclic AMP synthesis in intact renal epithelial cells. Biochim Biophys Acta. 1987 Oct 2;903(2):341-8.

[2]. Du K, et al. Benzyl alcohol protects against acetaminophen hepatotoxicity by inhibiting cytochrome P450 enzymes but causes mitochondrial dysfunction and cell death at higher doses. Food Chem Toxicol. 2015 Dec;86:253-61.

[3]. Cai C, et al. Benzyl alcohol attenuates acetaminophen-induced acute liver injury in a Toll-like receptor-4-dependent pattern in mice. Hepatology. 2014 Sep;60(3):990-1002.

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