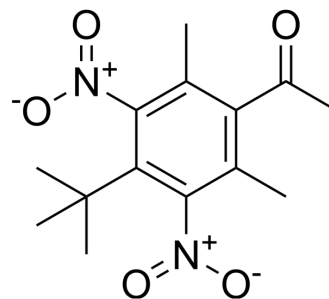


## Musk ketone

<b>Cat. No.:</b>	HY-N2045
<b>CAS No.:</b>	81-14-1
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>18</sub> N <sub>2</sub> O <sub>5</sub>
<b>Molecular Weight:</b>	294.3
<b>Target:</b>	PI3K; Akt; Apoptosis; Cytochrome P450
<b>Pathway:</b>	PI3K/Akt/mTOR; Apoptosis; Metabolic Enzyme/Protease
<b>Storage:</b>	-20°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 125 mg/mL (424.74 mM)  
\* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.3979 mL	16.9895 mL	33.9789 mL
	5 mM	0.6796 mL	3.3979 mL	6.7958 mL
	10 mM	0.3398 mL	1.6989 mL	3.3979 mL

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

#### In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.08 mg/mL (7.07 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Musk ketone is a widely used artificial fragrance. Musk ketone is also a cytochrome P450 enzyme inducer. Musk ketone shows mutagenic and comutagenic effects in Hep G2 cells and induces neural stem cell proliferation and differentiation in cerebral ischemia via activation of the PI3K/Akt signaling pathway. In the brain, musk ketone is neuroprotective against stroke injury through inhibition of cell apoptosis<sup>[1][2][3]</sup>.

#### In Vitro

Musk ketone (0.9 and 1.8 μM) enhances proliferation and differentiation in neural stem cells (NSCs), along with increased PI3K/Akt signaling pathway activation<sup>[3]</sup>.  
Musk ketone (0-100 μM, 48 h) inhibits the cell viability of GC cells, with IC<sub>50</sub>s of 4.2 μM for AGS cells and 10.06 μM for HGC-27 cells, and inhibits colonies formation<sup>[5]</sup>.  
Musk ketone (4.2 μM for AGS, 10.06 μM for HGC-27; 48 h) induces cell cycle arrest and apoptosis in AGS and HGC-27 cells<sup>[5]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.  
Apoptosis Analysis<sup>[5]</sup>

	Cell Line:	AGS, HGC-27
	Concentration:	4.2 $\mu$ M for AGS, 10.06 $\mu$ M for HGC-27
	Incubation Time:	48 h
	Result:	Increased ratio of Cle-caspase 3 to caspase 3 protein level. Induced cell apoptosis, detected by PI/Annexin V staining;
<b>In Vivo</b>	<p>Musk ketone (0.5 and 1 mg/kg, i.p.) ameliorates neurological deficit and reduces infarction and cerebral ischemic injury induced by middle cerebral artery occlusion (MCAO) in rats<sup>[3]</sup>.</p> <p>Musk ketone (20-200 mg/kg, p.o., 7 days) increases CYP2B activity, protein and mRNA levels, and increases CYP1A enzyme activity<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	

## CUSTOMER VALIDATION

- CNS Neurosci Ther. 2023 May 8.

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

## REFERENCES

- [1]. Yamagishi T, et al. Identification of musk xylene and musk ketone in freshwater fish collected from the Tama River, Tokyo. Bull Environ Contam Toxicol. 1981 May;26(5):656-62.
- [2]. Mersch-Sundermann V, et al. Musk ketone enhances benzo(a)pyrene induced mutagenicity in human derived Hep G2 cells. Mutat Res. 2001 Aug 22;495(1-2):89-96.
- [3]. Zhou Z, et al. Musk Ketone Induces Neural Stem Cell Proliferation and Differentiation in Cerebral Ischemia via Activation of the PI3K/Akt Signaling Pathway. Neuroscience. 2020 May 21;435:1-9.
- [4]. Lehman-McKeeman LD, et al. Effects of musk xylene and musk ketone on rat hepatic cytochrome P450 enzymes. Toxicol Lett. 1999 Dec 20;111(1-2):105-15.
- [5]. An J, et al. Musk ketone induces apoptosis of gastric cancer cells via downregulation of sorbin and SH3 domain containing 2. Mol Med Rep. 2021 Jun;23(6):450.

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

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