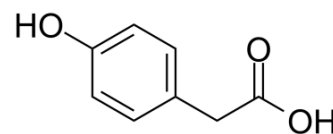


## 4-Hydroxyphenylacetic acid

Cat. No.:	HY-N1902
CAS No.:	156-38-7
Molecular Formula:	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>
Molecular Weight:	152.15
Target:	Keap1-Nrf2; Endogenous Metabolite
Pathway:	NF-κB; Metabolic Enzyme/Protease
Storage:	4°C, stored under nitrogen
	* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (657.25 mM)

\* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	6.5725 mL	32.8623 mL	65.7246 mL
	5 mM	1.3145 mL	6.5725 mL	13.1449 mL
	10 mM	0.6572 mL	3.2862 mL	6.5725 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 (16.43 mM); Clear solution
- Add each solvent one by one: **10% DMSO >> 90% (20% SBE-β-CD in saline)**  
Solubility: ≥ 2.5 mg/mL (16.43 mM); Clear solution
- Add each solvent one by one: **10% DMSO >> 90% corn oil**  
Solubility: ≥ 2.5 mg/mL (16.43 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

4-hydroxyphenylacetic acid, a major microbiota-derived metabolite of polyphenols, is involved in the antioxidative action. 4-hydroxyphenylacetic acid induces expression of **Nrf2**<sup>[1]</sup>.

#### IC<sub>50</sub> & Target

Human Endogenous Metabolite

#### In Vivo

4-Hydroxyphenylacetic acid (6, 12, or 25 mg/kg) increases Nrf2 translocation to the nucleus and enhances the activity of phase II and antioxidant enzymes. The protein levels of nuclear Nrf2 are increased by 170% and 230% in pre-

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treated 12 and 25 mg/kg 4-Hydroxyphenylacetic acid groups, respectively, compared with the control group. The 4-Hydroxyphenylacetic acid pretreatment at a final dose of 25 mg/kg markedly and selectively up-regulated the target genes of phase II enzymes and resulted in higher up-regulation than that of the control group by 270%, 400%, and 500% for UGT1A1, UGT1A9, and SULT2A1, respectively. 4-Hydroxyphenylacetic acid also suppresses the expression of CYP2E1<sup>[1]</sup>.

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## REFERENCES

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[1]. Zhao H, et al. 4-Hydroxyphenylacetic Acid Prevents Acute APAP-Induced Liver Injury by Increasing Phase II and Antioxidant Enzymes in Mice. *Front Pharmacol.* 2018 Jun 19;9:653.

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

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