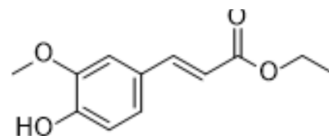


## Ethyl ferulate

<b>Cat. No.:</b>	HY-N0061
<b>CAS No.:</b>	4046-02-0
<b>Molecular Formula:</b>	C <sub>12</sub> H <sub>14</sub> O <sub>4</sub>
<b>Molecular Weight:</b>	222.24
<b>Target:</b>	Reactive Oxygen Species
<b>Pathway:</b>	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
<b>Storage:</b>	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 (449.96 mM)

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

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.4996 mL	22.4982 mL	44.9964 mL
	5 mM	0.8999 mL	4.4996 mL	8.9993 mL
	10 mM	0.4500 mL	2.2498 mL	4.4996 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 (11.25 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (11.25 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (11.25 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Ethyl ferulate, a naturally lipophilic derivative of ferulic acid originally derived from Rhizoma Chuanxiong, induces heme oxygenase-1 (HO-1) and protects rat neurons against oxidative stress<sup>[1]</sup>. Ethyl ferulate also protects neurons against amyloid β peptide (1-42)-induced oxidative stress and neurotoxicity<sup>[2]</sup>.

#### In Vitro

Ethyl ferulate (1-50 μM, 6 or 24 h) increases HO activity, HO-1 mRNA, and protein expression in astrocytes and hippocampal neurons<sup>[1]</sup>.  
Ethyl ferulate (5 μM, 12 h) protects rat hippocampal neurons from GOX-induced cell death by induction of HO-1<sup>[1]</sup>.  
Ethyl ferulate (10-50 μM, 24 h) protects primary neuronal cells against Aβ-peptide (1-42)-induced cytotoxicity, formation of

3-NT, ROS accumulation, and lipid peroxidation<sup>[2]</sup>.

Ethyl ferulate (20-160  $\mu$ M, 24 h) protects RPE cells from CoCl<sub>2</sub> (150  $\mu$ M) induced reduction in cell viability<sup>[5]</sup>.

Ethyl ferulate (40  $\mu$ M, 24 h) inhibits CoCl<sub>2</sub>-induced VEGFA expression by activating the Nrf-2 pathway and reducing ROS generation in RPE cells<sup>[5]</sup>.

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

Western Blot Analysis<sup>[5]</sup>

Cell Line:	RPE cells (induced by 150 $\mu$ M CoCl <sub>2</sub> for 12 h)
Concentration:	40 $\mu$ M
Incubation Time:	2 h
Result:	Increased Nrf-2 expression and nuclear translocation. Decreased Keap-1 expression, and increased HO-1 and NQO-1 expression. Reduced hypoxia-induced HIF-1 $\alpha$ and VEGFA expression.

## In Vivo

Ethyl ferulate (15-50 mg/kg, i.p., twice a day for 5 days) inhibits LPS-induced acute lung injury in mice<sup>[3]</sup><sup>[4]</sup>.

Ethyl ferulate (0.05-0.2  $\mu$ g, intravitreal administration, 1  $\mu$ l/eye) inhibits retinal neovascularization in the oxygen-induced retinopathy mice model<sup>[5]</sup>.

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

Animal Model:	LPS (0.5 mg/kg)-induced acute lung injury mice model <sup>[3]</sup>
Dosage:	15 and 30 mg/kg
Administration:	i.p., twice a day for 5 days
Result:	Reduced leukocyte infiltration. Reduced MPO activity, mRNA levels and secretion of TNF- $\alpha$ and IL-6.

## CUSTOMER VALIDATION

- Acta Pharmacol Sin. 2021 Aug 20.

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

## REFERENCES

[1]. Wang Y, et al. Ethyl ferulate contributes to the inhibition of the inflammatory responses in murine RAW 264.7 macrophage cells and acute lung injury in mice. PLoS One. 2021 May 26;16(5):e0251578.

[2]. Wu YX, et al. Ethyl ferulate protects against lipopolysaccharide-induced acute lung injury by activating AMPK/Nrf2 signaling pathway. Acta Pharmacol Sin. 2021 Dec;42(12):2069-2081.

[3]. Xue R, et al. Protective effect of ethyl ferulate against hypoxic injury in retinal cells and retinal neovascularization in an oxygen-induced retinopathy model. Phytomedicine. 2023 Dec;121:155097.

[4]. Scapagnini G, et al. Ethyl ferulate, a lipophilic polyphenol, induces HO-1 and protects rat neurons against oxidative stress. Antioxid Redox Signal. 2004 Oct;6(5):811-8.

[5]. Sultana R, et al. Ferulic acid ethyl ester protects neurons against amyloid beta-peptide(1-42)-induced oxidative stress and neurotoxicity: relationship to antioxidant activity. J Neurochem. 2005 Feb;92(4):749-58.

---

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA