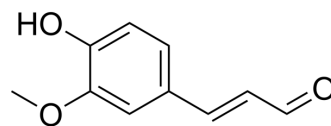


## Coniferaldehyde

|                    |                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------|
| Cat. No.:          | HY-N2535                                                                                       |
| CAS No.:           | 458-36-6                                                                                       |
| Molecular Formula: | C <sub>10</sub> H <sub>10</sub> O <sub>3</sub>                                                 |
| Molecular Weight:  | 178.18                                                                                         |
| Target:            | Keap1-Nrf2; Apoptosis                                                                          |
| Pathway:           | NF-κB; Apoptosis                                                                               |
| Storage:           | 4°C, protect from light<br>* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light) |



### SOLVENT & SOLUBILITY

|                                                                               |                                                                                                                                        |                          |      |       |           |            |            |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------|-------|-----------|------------|------------|
| In Vitro                                                                      | DMSO : 100 mg/mL (561.23 mM; Need ultrasonic)                                                                                          |                          |      |       |           |            |            |
|                                                                               | Preparing Stock Solutions                                                                                                              | Solvent<br>Concentration | Mass | 1 mg  | 5 mg      | 10 mg      |            |
|                                                                               |                                                                                                                                        |                          |      | 1 mM  | 5.6123 mL | 28.0615 mL | 56.1230 mL |
|                                                                               |                                                                                                                                        |                          |      | 5 mM  | 1.1225 mL | 5.6123 mL  | 11.2246 mL |
|                                                                               |                                                                                                                                        |                          |      | 10 mM | 0.5612 mL | 2.8062 mL  | 5.6123 mL  |
| Please refer to the solubility information to select the appropriate solvent. |                                                                                                                                        |                          |      |       |           |            |            |
| In Vivo                                                                       | 1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline<br>Solubility: ≥ 1 mg/mL (5.61 mM); Clear solution |                          |      |       |           |            |            |
|                                                                               | 2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)<br>Solubility: ≥ 1 mg/mL (5.61 mM); Clear solution            |                          |      |       |           |            |            |
|                                                                               | 3. Add each solvent one by one: 10% DMSO >> 90% corn oil<br>Solubility: ≥ 1 mg/mL (5.61 mM); Clear solution                            |                          |      |       |           |            |            |

### BIOLOGICAL ACTIVITY

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description | Coniferaldehyde (4-Hydroxy-3-methoxycinnamaldehyde) is an effective inducer of heme oxygenase-1 (HO-1). Coniferaldehyde inhibits LPS-induced apoptosis through the PKCα/β II/Nrf-2/HO-1 dependent pathway in RAW264.7 macrophage cells. Coniferaldehyde has antioxidant and anti-inflammatory activities <sup>[1]</sup> .                                                                                                                                                                                |
| In Vitro    | Coniferaldehyde (0.1-5 μM; Pretreatment with 1 h; and then treated with 24 h) exerts cytoprotective function against LPS-induced cell death and dramatically inhibits LPS-induced NO production as assessed by the Griess reaction in a dose dependent manner <sup>[1]</sup> .<br>Coniferaldehyde (0.5-5 μM; 4-24 h) dramatically increases the Nrf-2 nuclear translocation and HO-1 expression. Furthermore, Coniferaldehyde specifically enhances the phosphorylation of PKCα/PKCβ II <sup>[1]</sup> . |

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

#### Cell Viability Assay<sup>[1]</sup>

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| Cell Line:       | Raw264.7 cells induced with LPS                           |
| Concentration:   | 0.1 $\mu$ M, 0.5 $\mu$ M, 1 $\mu$ M, 2 $\mu$ M, 5 $\mu$ M |
| Incubation Time: | Pretreatment with 1 h, and then treated with 24 h         |
| Result:          | Inhibited LPS-induced NO production and cell death.       |

#### Western Blot Analysis<sup>[1]</sup>

|                  |                                                                    |
|------------------|--------------------------------------------------------------------|
| Cell Line:       | Raw264.7 cells                                                     |
| Concentration:   | 0.5 $\mu$ M, 1 $\mu$ M, 2 $\mu$ M, 5 $\mu$ M                       |
| Incubation Time: | 4 h, 8 h, 12 h, 24 h                                               |
| Result:          | Increased HO-1 protein level in a dose- and time-dependent manner. |

#### In Vivo

Coniferaldehyde (0.05 mmol/kg/day; i.p.; for 6 weeks) activates the Nrf2 signaling pathway in primary chondrocytes and articular cartilage from the knee joints. And Coniferaldehyde alleviates cartilage destruction in OA mice<sup>[2]</sup>.

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

|                 |                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------|
| Animal Model:   | B6 male mice (26 g; 8-10 weeks old), surgical-induced osteoarthritis (OA) <sup>[2]</sup>            |
| Dosage:         | 0.05 mmol/kg/day (approx. 8.9 mg/kg)                                                                |
| Administration: | i.p.; for 6 weeks                                                                                   |
| Result:         | Evidently alleviated the medial meniscus cartilage damage in mice subjected to the destabilization. |

## CUSTOMER VALIDATION

- bioRxiv. 2024 May 21.

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

## REFERENCES

[1]. Dawei Cai, et al. Coniferaldehyde prevents articular cartilage destruction in a murine model via Nrf2/HO-1 pathway. Mol Med Rep. 2021 Mar;23(3):224.

[2]. Kim KM, et al. Coniferaldehyde inhibits LPS-induced apoptosis through the PKC  $\alpha/\beta$  II/Nrf-2/HO-1 dependent pathway in RAW264.7 macrophage cells. Environ Toxicol Pharmacol. 2016 Dec;48:85-93.

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

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