# Wedelolactone

**Cat. No.:** HY-N0551

**CAS No.:** 524-12-9

**Molecular Formula:** $C_{16}H_{10}O_7$

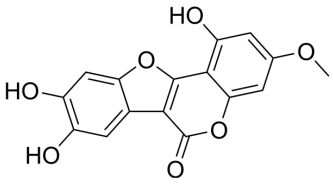
**Molecular Weight:** 314.25

**Target:** Caspase; Lipoxygenase; Apoptosis

**Pathway:** Apoptosis; Metabolic Enzyme/Protease

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| In solvent | -80°C | 1 year |
| | -20°C | 6 months |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 125 mg/mL (397.77 mM; Need ultrasonic)

| Preparing Stock Solutions | Concentration \ Solvent \ Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 3.1822 mL | 15.9109 mL | 31.8218 mL |
| | 5 mM | 0.6364 mL | 3.1822 mL | 6.3644 mL |
| | 10 mM | 0.3182 mL | 1.5911 mL | 3.1822 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
   Solubility: ≥ 2.08 mg/mL (6.62 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.62 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Wedelolactone suppresses LPS-induced caspase-11 expression by directly inhibits the IKK Complex. Wedelolactone also inhibits 5-lipoxygenase (5-Lox) with an $IC_{50}$ of 2.5 μM. Wedelolactone induces caspase-dependent apoptosis in prostate cancer cells via downregulation of PKCε without inhibiting Akt. Wedelolactone can extract from Eclipta alba, and it can be used for the research of cancer[1][2][3].

| $IC_{50}$ & Target | | | |
|---|---|---|---|
| | Caspase-11 | 5-LOX<br>2.5 μM ($IC_{50}$) | Apoptosis |

**In Vitro**

Wedelolactone (0-5 μg/mL; 0-21 d) enhances bone marrow mesenchymal stem cells (BMSC) differentiation towards osteoblasts[3].

Wedelolactone (0-6 μg/mL; 0-9 d) inhibits GSK3β activity and increases β-catenin and runx2 nuclear accumulation in BMSC,

and inhibits the effect of RANKL[3].
Wedelolactone (0-5 μg/ml; 60 min) inhibits GSK3β activity and proves GSK3β is the target of wedelolactone[3].
Wedelolactone (0-5 μg/ml; 6 d) inhibits c-src, c-fos and cathepsin k expression level[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Differentiation Assay[3]

| | |
|---|---|
| Cell Line: | Mouse BMSC |
| Concentration: | 0-5 μg/mL |
| Incubation Time: | 0, 6, 9, 12 and 21 days |
| Result: | Increased Mouse BMSC into osteoblastic cells and dose-dependently increased the activity of alkaline phosphatase at incubation for 9 days. |

Western Blot Analysis[3]

| | |
|---|---|
| Cell Line: | Mouse BMSC and RAW264.7 cells |
| Concentration: | 0-5 μg/mL |
| Incubation Time: | 0-9 days |
| Result: | Decreased GSK3β expression level and up-regulated GSK3β phosphorylation, nuclear accumulation of β-catenin and runx2 in BMSC. Inhibited RANKL-induced phosphorylation of NF-κB/p65 and the expression level of c-fos and c-Src. |

Cell Viability Assay[3]

| | |
|---|---|
| Cell Line: | Mouse BMSC |
| Concentration: | 0.1, 1.25, 2.5, 5 μg/ml |
| Incubation Time: | 60 min |
| Result: | Inhibited GSK3β activity with an $IC_{50}$ of 21.7 μM weeker than staurosporin which is a GSK3 β inhibitor and proved GSK3β is a target. |

RT-PCR[3]

| | |
|---|---|
| Cell Line: | RAW264.7 cells |
| Concentration: | 0, 0.6, 1.25, 2.5 and 5 μg/mL |
| Incubation Time: | 6 days |
| Result: | Inhibited the expression of osteoclast differentiation related marker genes c-src, c-fos and cathepsin in RAW264.7 cells. |

**In Vivo**

Wedelolactone (10 mg/kg; i.p. every 2 days for 4 weeks) decreases bone volumn and trabecular number at the femur after ovarietomy, and prevents the VOX-induced bone loss[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | Ovariectomized 9-week-old mice[3] |
| Dosage: | 10 mg/kg |

| | |
|---|---|
| Administration: | Intraperitoneal injection; 10 mg/kg every 2 days; for 4 weeks |
| Result: | Inhibited osteoclast activity and stimulated osteoblast differentiation to achieved osteoprotective effect. |

## CUSTOMER VALIDATION

- Acta Pharm Sin B. 15 October 2021.
- Cell Rep. 2021 Sep 21;36(12):109750.
- Phytomedicine. 2023 Sep 29, 155124.
- Microb Biotechnol. 2023 Jun 16.
- Hepatol Commun. 2022 May 4.

See more customer validations on www.MedChemExpress.com

## REFERENCES

[1]. Kobori M, et al. Wedelolactone suppresses LPS-induced caspase-11 expression by directly inhibiting the IKK complex. Cell Death Differ. 2004 Jan;11(1):123-30.

[2]. Sarveswaran S, et al. Wedelolactone, a medicinal plant-derived coumestan, induces caspase-dependent apoptosis in prostate cancer cells via downregulation of PKCε without inhibiting Akt. Int J Oncol. 2012 Dec;41(6):2191-9.

[3]. Liu YQ, et al. Wedelolactone enhances osteoblastogenesis by regulating Wnt/β-catenin signaling pathway but suppresses osteoclastogenesis by NF-κB/c-fos/NFATc1 pathway. Sci Rep. 2016 Aug 25;6:32260.



Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

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