

## Brusatol

**Cat. No.:** HY-19543

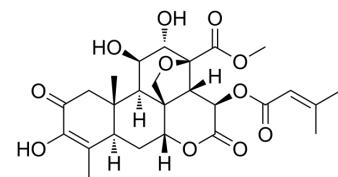
**CAS No.:** 14907-98-3

**Molecular Formula:** C<sub>26</sub>H<sub>32</sub>O<sub>11</sub>

**Molecular Weight:** 520.53

**Storage:** 4°C, protect from light, stored under nitrogen

\* In solvent : -80°C, 1 year; -20°C, 6 months (protect from light, stored under nitrogen)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 25 mg/mL (48.03 mM; Need ultrasonic)

Preparing Stock Solutions	Concentration	Solvent Mass		
		1 mg	5 mg	10 mg
	1 mM	1.9211 mL	9.6056 mL	19.2112 mL
	5 mM	0.3842 mL	1.9211 mL	3.8422 mL
	10 mM	0.1921 mL	0.9606 mL	1.9211 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: ≥ 2.5 mg/mL (4.80 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (4.80 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (4.80 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Brusatol (NSC 172924) is a unique inhibitor of the Nrf2 pathway that sensitizes a broad spectrum of cancer cells to Cisplatin and other chemotherapeutic agents. Brusatol enhances the efficacy of chemotherapy by inhibiting the Nrf2-mediated defense mechanism. Brusatol can be developed into an adjuvant chemotherapeutic agent<sup>[1]</sup>. Brusatol increases cellular apoptosis<sup>[2]</sup>.

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

Nrf2<sup>[1]</sup>

#### In Vitro

Brusatol (0.05, 0.15, 0.45, 1.35, 4.05 and 12.15 µg/mL) reduces the viability of CT-26 cells in a dose-dependent manner with IC<sub>50</sub> value of 0.27±0.01 µg/mL. When Brusatol is combined with Cisplatin (CDDP) at a constant concentration ratio of 1:1, cell

growth inhibition is markedly enhanced compared with single-agent treatment; the IC<sub>50</sub>?value of Brusatol and CDDP cotreatment is 0.19±0.02µg/mL<sup>[2]</sup>.

Brusatol provokes a rapid and transient depletion of Nrf2 protein, through a posttranscriptional mechanism, in mouse Hepa-1c1c7 hepatoma cells. Brusatol sensitizes mammalian cells to chemical toxicity<sup>[3]</sup>.

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

#### Cell Viability Assay<sup>[2]</sup>

Cell Line:	The murine CT-26 CRC cell line
Concentration:	0.05, 0.15, 0.45, 1.35, 4.05 and 12.15 µg/mL
Incubation Time:	48 hours
Result:	The viability of CT-26 cells was reduced in a dose-dependent manner, with IC <sub>50</sub> value of 0.27±0.01 µg/mL.

#### Western Blot Analysis<sup>[3]</sup>

Cell Line:	Mouse Hepa-1c1c7 hepatoma cells
Concentration:	1, 3, 10, 30, 100, 300, and 1000 nM
Incubation Time:	2 hours
Result:	Provoked the depletion of Nrf2, in a concentration-dependent manner within 2 h of exposure to cells.

#### In Vivo

Brusatol is able to reach the tumor tissue and inhibit the Nrf2 pathway. Nude mice are injected with A549 cells to induce tumor growth, followed by a single i.p. injection of 2 mg/kg Brusatol. Nrf2 protein levels are significantly decreased at 24 h or 48 h postinjection<sup>[1].?</sup>

Cisplatin (2 mg/kg) or Brusatol (2 mg/kg) alone does not inhibit tumor growth significantly, whereas in the combination group, tumor size is significantly reduced<sup>[1].?"</sup>

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

Animal Model:	Athymic nude mice 4-6 wk old bearing A549 xenografts <sup>[1]</sup>
Dosage:	2 mg/kg
Administration:	Treated i.p.; Cisplatin (2 mg/kg), Brusatol (2 mg/kg), or in combination every other day for a total of five times
Result:	Nrf2 protein levels were significantly decreased at 24 h or 48 h postinjection. Cisplatin or Brusatol alone did not inhibit tumor growth significantly, whereas in the combination group, tumor size was significantly reduced. "

#### CUSTOMER VALIDATION

- Cell Commun Signal. 2022 Oct 27;20(1):168.
- Biomed Pharmacother. 2023 Dec 12:170:116006.
- Free Radic Biol Med. 2020 Nov 20;160:820-836.
- Antioxidants (Basel). 2023 Nov 13, 12(11), 1999.
- Food Funct. 2023 Oct 6.

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