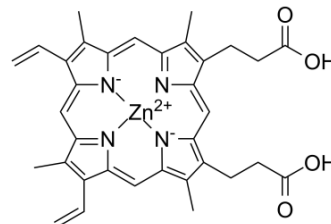


Zinc Protoporphyrin

Cat. No.:	HY-101193
CAS No.:	15442-64-5
Molecular Formula:	C ₃₄ H ₃₂ N ₄ O ₄ Zn
Molecular Weight:	626.02
Target:	Reactive Oxygen Species; Endogenous Metabolite; Apoptosis
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (79.87 mM; Need ultrasonic)
 H₂O : < 0.1 mg/mL (insoluble)

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.5974 mL	7.9870 mL	15.9739 mL
	5 mM	0.3195 mL	1.5974 mL	3.1948 mL
	10 mM	0.1597 mL	0.7987 mL	1.5974 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 (3.99 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: 2.5 mg/mL (3.99 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Zinc Protoporphyrin (Zn(II)-protoporphyrin IX) is an orally active and competitive heme oxygenase-1 (HO-1) inhibitor and markedly attenuates the protective effects of Phloroglucinol (PG) against H₂O₂^[1]. Zinc Protoporphyrin is used as a screening marker of iron deficiency in individual pregnant women and children, but also to assess population iron status in combination with haemoglobin concentration^[2]. Zinc Protoporphyrin has anti-cancer activity^[3].

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

Zinc Protoporphyrin (Zn(II)-protoporphyrin IX; 5 μM; 72 hours) causes the fraction of late apoptotic and necrotic cells increasing from 10.9% in controls to 30.4% after 72 h^[3].
 Zinc Protoporphyrin (1.25-40 μM; 48 or 72 hours) exerts cystostatic/cytotoxic effects against tumor cells^[3].

Zinc Protoporphyrin (2.5, 5 μ M; 48 or 72 hours) results in dose- and time-dependent reduction of cells in G1 phase of the cell cycle^[3].

Zinc Protoporphyrin (1.25-40 μ M; 48 hours) leads to accumulation of cleaved (active) caspase-3^[3].

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

Apoptosis Analysis^[3]

Cell Line:	C-26 cells
Concentration:	5 μ M
Incubation Time:	72 hours
Result:	The fraction of late apoptotic and necrotic cells increased from 10.9% in controls to 30.4% after 72 h.

Cell Cytotoxicity Assay^[3]

Cell Line:	C-26 and MDA-MB231 cells
Concentration:	1.25, 2.5, 5, 10, 20, 40 μ M
Incubation Time:	48 or 72 hours
Result:	Exerted cystostatic/cytotoxic effects against tumor cells.

Cell Cycle Analysis^[3]

Cell Line:	C-26 cells
Concentration:	2.5, 5 μ M
Incubation Time:	48 or 72 hours
Result:	Resulted in dose- and time-dependent reduction of cells in G1 phase of the cell cycle.

Western Blot Analysis^[3]

Cell Line:	C-26 cells
Concentration:	1.25, 2.5, 5, 10, 20, 40 μ M
Incubation Time:	48 hours
Result:	Leaded to accumulation of cleaved (active) caspase-3.

In Vivo

Zinc Protoporphyrin (12.5, 25, 50 mg/kg for i.p.; 12.5, 50 mg/kg for p.o.; from day 7 to 19) exerts dose-dependent antitumor effects manifested by the retardation of tumor growth^[3].

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

Animal Model:	BALB/c mice inoculated with C-26 cells ^[3]
Dosage:	12.5, 25, 50 mg/kg for i.p.; 12.5, 50 mg/kg for p.o.
Administration:	IP or PO; from day 7 to 19
Result:	Exerted dose-dependent antitumor effects manifested by the retardation of tumor growth.

CUSTOMER VALIDATION

- Ecotoxicol Environ Saf. 2020 Oct 20;208:111426.
- Cell Stress Chaperones. 2021 Jan 6.

See more customer validations on www.MedChemExpress.com

REFERENCES

- [1]. Park C, et al. Protective Effect of Phloroglucinol on Oxidative Stress-Induced DNA Damage and Apoptosis through Activation of the Nrf2/HO-1 Signaling Pathway in HaCaT Human Keratinocytes. Mar Drugs. 2019 Apr 13;17(4).
- [2]. Mwangi MN, et al. Diagnostic utility of zinc protoporphyrin to detect iron deficiency in Kenyan pregnant women. BMC Med. 2014 Nov 26;12:229.
- [3]. Nowis D, et al. Zinc protoporphyrin IX, a heme oxygenase-1 inhibitor, demonstrates potent antitumor effects but is unable to potentiate antitumor effects of chemotherapeutics in mice. BMC Cancer. 2008 Jul 11;8:197.
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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

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