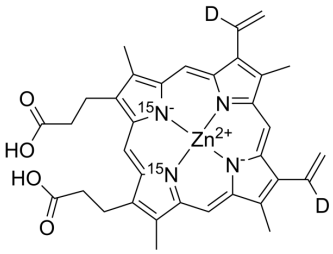
Zinc Protoporphyrin-d_2,$^{15}N_2$

Cat. No.:	HY-101193S
Molecular Formula:	$C_{34}H_{30}D_2N_2{}^{15}N_2O_4Zn$
Molecular Weight:	630.02
Target:	Apoptosis; Endogenous Metabolite; Reactive Oxygen Species; Isotope-Labeled Compounds
Pathway:	Apoptosis; Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Zinc Protoporphyrin-d_2,$^{15}N_2$ is ^{15}N and deuterated labeled Zinc Protoporphyrin (HY-101193). 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 H_2O_2[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].
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1]. to increase in 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[4]. Zinc Protoporphyrin (1.25-40 μM; 48 or 72 hours) exerts cytostatic/cytotoxic effects against tumor cells[4]. Zinc Protoporphyrin (2.5, 5 μM; 48 or 72 hours) results in dose- and time-dependent reduction of cells in the G1 phase of the cell cycle[4]. Zinc Protoporphyrin (1.25-40 μM; 48 hours) leads to the accumulation of cleaved (active) caspase-3[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
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[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Park C, et al. Protective Effect of Phloroglucinol on Oxidative Stress-Induced DNA Damage and Apoptosisthrough Activation of the Nrf2/HO-1 Signaling Pathway in HaCaT Human Keratinocytes. Mar Drugs. 2019 Apr 13;17(4).

[2]. 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.

[3]. Mwangi MN, et al. Diagnostic utility of zinc protoporphyrin to detect iron deficiency in Kenyan pregnant women. BMC Med. 2014 Nov 26;12:229.

[4]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019 Feb;53(2):211-216.

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

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