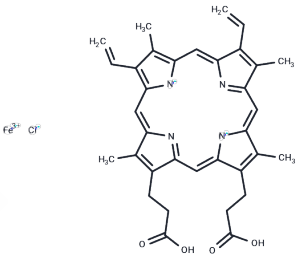
Data Sheet (Cat.No.T5515)

TargetMol

Hemin

Chemical Properties



CAS No. : 16009-13-5

Formula: C34H32ClFeN4O4

Molecular Weight: 651.94

Storage: Keep away from direct sunlight,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Hemin (Hemin chloride) is a chlorinated iron-containing porphyrin, a heme oxygenase (HO)-1 inducer. Hemin has therapeutic activity in porphyrias by reducing heme deficiency in patients, thereby inhibiting δ-aminolevulinic acid synthetase activity through biochemical feedback.
Targets(IC50)	Mitophagy,Ferroptosis,Autophagy
In vitro	**METHODS**: Pancreatic cancer cells PA-TU-8902, BxPC-3 and MiaPaCa-2 were treated with Hemin (30 μM) for 48 h. Cell viability was measured using the CellTiter-Glo Luminescent Cell Viability Assay. **RESULTS**: Hemin had a significant effect on cell proliferation of PA-TU-8902, BxPC-3 and MiaPaCa-2 cell lines, decreasing cell proliferation to 62±5%, 51±3% and 38±8%, respectively. [1] **METHODS**: Astrocyte cultures were treated with Hemin (25 μM) for 12-24 h. Iron content was measured using colorimetric method. **RESULTS**: Iron accumulation occurred in cultured astrocytes after incubation with Hemin. [2]
In vivo	**METHODS**: To investigate the effects on renal injury, Hemin (100 μmol/kg) was administered intraperitoneally to BABL/c mice with renal ischemia-reperfusion. **RESULTS**: Hemin pretreatment promoted ERK1/2 phosphorylation and enhanced tubular recovery, thereby preventing further kidney injury. [3] **METHODS**: To investigate the effects on insulin resistance, Hemin (50 μmol/kg) was administered intraperitoneally to C57BL/6 mice on a high-fat diet once daily for four weeks. **RESULTS**: Hemin prevented the development of high-fat diet-induced insulin resistance by increasing insulin sensitivity in skeletal muscle. [4]
Cell Research	In vitro effects of various statins and hemin, a heme oxygenase inducer, on cell proliferation were evaluated in PA-TU-8902, MiaPaCa-2 and BxPC-3 human pancreatic cancer cell lines. The effect of statins on heme oxygenase activity was assessed and heme oxygenase-silenced cells were used for pancreatic cancer cell proliferation studies. Cell death rate and reactive oxygen species production were measured in PA-TU-8902 cells, followed by evaluation of the effect of cerivastatin on GFP-K-Ras trafficking and expression of markers of invasiveness, osteopontin (SPP1) and SOX2[1].

Solubility Information

Solubility	DMSO: 30 mg/mL (46.02 mM),Sonication is recommended. 0.1M NaOH: 25 mg/mL (38.35 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	0.05% DMSO+99.95% 0.1 M NaoH: 0.33 mg/mL (0.51 mM),Solution. 8% 0.1M NaOH+92% PBS: 2 mg/mL (3.07 mM),Solution, pH=7. 0.05%DMSO+99.95%PBS: 0.33 mg/mL (0.51 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5339 mL	7.6694 mL	15.3388 mL
5 mM	0.3068 mL	1.5339 mL	3.0678 mL
10 mM	0.1534 mL	0.7669 mL	1.5339 mL
50 mM	0.0307 mL	0.1534 mL	0.3068 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Vanova K, et al. Heme oxygenase is not involved in the anti-proliferative effects of statins on pancreatic cancer cells. BMC Cancer. 2016 May 12;16:309.

Yang L, Zhang M, Liu M, et al.Loss of FTH1 Induces Ferritinophagy-Mediated Ferroptosis in Anaemia of Myelodysplastic Syndromes.Journal of Cellular and Molecular Medicine.2025, 29(1): e70350.

Owen JE, et al. Uptake and Toxicity of Hemin and Iron in Cultured Mouse Astrocytes. Neurochem Res. 2016 Feb;41 (1-2):298-306.

Chen HH, et al. Heme oxygenase-1 ameliorates kidney ischemia-reperfusion injury in mice through extracellular signal-regulated kinase 1/2-enhanced tubular epithelium proliferation. Biochim Biophys Acta. 2015 Oct;1852(10 Pt A):2195-201.

Ju TJ, et al. Hemin improves insulin sensitivity in skeletal muscle in high fat-fed mice. J Pharmacol Sci. 2014;126(2): 115-25.