Ferrostatin-1

Cat. No.: HY-100579

CAS No.: 347174-05-4

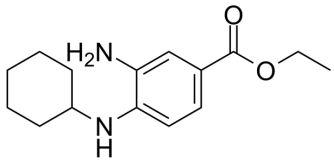
Molecular Formula: $C_{15}H_{22}N_2O_2$

Molecular Weight: 262.35

Target: Ferroptosis; Fungal

Pathway: Apoptosis; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (476.46 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.8117 mL	19.0585 mL	38.1170 mL
	5 mM	0.7623 mL	3.8117 mL	7.6234 mL
	10 mM	0.3812 mL	1.9059 mL	3.8117 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 (7.93 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.93 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ferrostatin-1 (Fer-1), a potent and selective ferroptosis inhibitor, suppresses Erastin-induced ferroptosis in HT-1080 cells (EC_{50}=60 nM). Ferrostatin-1, a synthetic antioxidant, acts via a reductive mechanism to prevent damage to membrane lipids and thereby inhibits cell death. Antifungal Activity[1][2][3].

IC_{50} & Target

EC50: 60 nM (Ferroptosis)[1]

In Vitro

Ferrostatin-1 (Fer-1) prevents erastin-induced accumulation of cytosolic and lipid ROS. Ferrostatin-1 prevents glutamate-induced neurotoxicity in organotypic rat brain slices[1].
Fer-1 inhibits lipid peroxidation, but not mitochondrial reactive oxygen species formation or lysosomal membrane

	permeability[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Ferrostatin-1 inhibits cell death in cellular models of Huntington's disease (HD), periventricular leukomalacia (PVL), and kidney dysfunction [2]. Ferrostatin-1 (0.8 mg/kg; tail vein injection) effectively alleviates LPS-induced induced acute lung injury (ALI)[4]. Ferrostatin-1 (i.p.; 5 mg/kg; C57BL/6J mice) improves renal function in mice with rhabdomyolysis[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male C57BL/6 mice (LPS-induced ALI)[4]
Dosage:	0.8 mg/kg
Administration:	Tail vein injection
Result:	Exerted therapeutic action against LPS-induced ALI.

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2020 May 8;5(1):51.
- Small. 2022 Jan 29;e2106568.
- Small. 2021 Aug;17(32):e2101368.
- Cell Death Differ. 2022 Apr 5.
- Cell Death Differ. 2021 Apr;28(4):1222-1236.

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REFERENCES

[1]. Dixon SJ, et al. Ferroptosis: an iron-dependent form of nonapoptotic cell death. Cell. 2012;149(5):1060-1072.

[2]. Skouta R, Dixon SJ, Wang J, et al. Ferrostatins inhibit oxidative lipid damage and cell death in diverse disease models. J Am Chem Soc. 2014;136(12):4551-4556.

[3]. Horwath MC, et al. Antifungal Activity of the Lipophilic Antioxidant Ferrostatin-1. Chembiochem. 2017;18(20):2069-2078.

[4]. Liu P, Feng Y, et al. Ferrostatin-1 alleviates lipopolysaccharide-induced acute lung injury via inhibiting ferroptosis. Cell Mol Biol Lett. 2020;25:10. Published 2020 Feb 27.

[5]. Melania Guerrero Hue, et al. FP282 FERROPTOSIS-MEDIATED CELL DEATH IS DECREASED BY CURCUMIN IN RENAL DAMAGE ASSOCIATED TO RHABDOMYOLYSIS, Nephrology Dialysis Transplantation, Volume 34, Issue Supplement_1, June 2019, gfz106.FP282.

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