Product Data Sheet

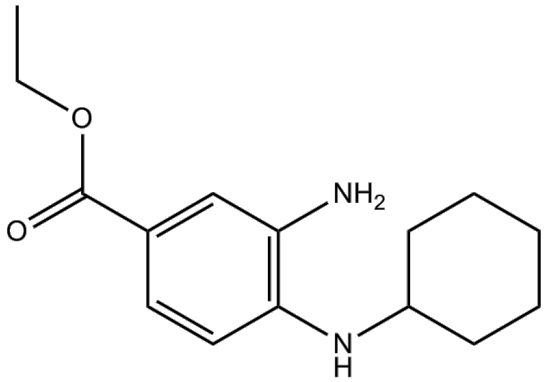
Product Name: Ferrostatin-1 (Fer-1)

Cat. No.: GC10380

Chemical Properties

Cas No.	347174-05-4		
Chemical Name	N/A		
Canonical SMILES	NC1=C(NC2CCCCC2)C=CC(C(OCC)=O)=C1		
Formula	$C_{15}H_{22}N_2O_2$	M.Wt	262.35
Solubility	≥9.8 mg/mL in DMSO, ≥99.6 mg/mL in EtOH with ultrasonic, <2.285 mg/mL in H2O	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Cell experiment [1]:

Cell lines	Healthy medium spiny neurons, oligodendrocytes, kidney proximal tubules cell
Preparation method	The solubility of this compound in DMSO is >9.8mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 ℃ for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20℃ for several months.
Reacting condition	10 nM, 100 nM, and 1 μM

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Applications	Fer-1 (10 nM, 100 nM, and 1 μM) significantly increased the number of healthy MSNs. Fer-1 (1 μM) statistically increased the number of healthy MSN. Fer-1 (100 nM) fully protected oligodendrocytes from cystine deprivation. Fer-1 (0.1-2 μM) prevented lethality induced by hydroxyquinoline and ferrous ammonium sulfate (HQ + Fe; 10 μM each).
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

References:
[1]. Skouta R, Dixon S J, Wang J, et al. Ferrostatins inhibit oxidative lipid damage and cell death in diverse disease models[J]. Journal of the American Chemical Society, 2014, 136(12): 4551-4556.

Background

Ferrostatin-1 is a potent inhibitor of ferroptosis with an EC50 of 60 nM.

Ferrostatin-1 is the most potent inhibitor of erastin-induced ferroptosis in HT-1080 cells (EC50=60 nM). Ferrostatin-1 does not inhibit ERK phosphorylation or arrest the proliferation of HT-1080 cells. Ferrostatin-1 does, however, prevent erastin-induced accumulation of cytosolic and lipid ROS[1]. Cells pretreated with 0.4 μM Ferrostatin-1 displays significantly reduce intracellular reactive oxygen species (ROS) and nitrogen species (RNS) below basal levels. Additionally, increased intracellular ROS levels are also significantly lowered below basal levels by a 0.4 μM Ferrostatin-1 pretreatment. Ferrostatin-1 treatment for 24 h does not change the expression level of i-NOS in SHSY-5Y cell when compare with vehicle (0.02 % DMSO) treated cells[2].

References:
[1]. Dixon SJ, et al. Ferroptosis: an iron-dependent form of nonapoptotic cell death. Cell. 2012 May 25;149(5):1060-72.
[2]. Kabiraj P, et al. The neuroprotective role of ferrostatin-1 under rotenone-induced oxidative stress in dopaminergic neuroblastoma cells. Protein J. 2015 Oct;34(5):349-58.

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