Liproxstatin-1

Cat. No.: HY-12726

CAS No.: 950455-15-9

Molecular Formula: $C_{19}H_{21}ClN_4$

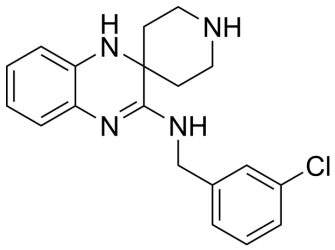
Molecular Weight: 340.85

Target: Ferroptosis

Pathway: Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 31 mg/mL (90.95 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9338 mL	14.6692 mL	29.3384 mL
	5 mM	0.5868 mL	2.9338 mL	5.8677 mL
	10 mM	0.2934 mL	1.4669 mL	2.9338 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: ≥ 2.5 mg/mL (7.33 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.33 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.33 mM); Clear solution
4. Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline
   Solubility: ≥ 2.5 mg/mL (7.33 mM); Clear solution
5. Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.33 mM); Clear solution
6. Add each solvent one by one: 1% DMSO >> 99% saline
   Solubility: ≥ 0.5 mg/mL (1.47 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Liproxstatin-1 is a potent ferroptosis inhibitor and inhibits ferroptotic cell death (IC_{50}=22 nM)[1].
IC_{50} & Target	IC50: 22 nM (ferroptosis)[2]
In Vitro	Liproxstatin-1 shows antiferroptotic activity with an IC_{50} of approximately 38 nM in mouse embryonic fibroblasts[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Liproxstatin-1 (10 mg/kg, i.p.) suppresses ferroptosis in human cells, $Gpx4^{?/?}$ kidney and in an ischaemia/reperfusion-induced tissue injury model[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	To induce the knockout of Gpx4, cells are seeded onto 96-well plates (1,000 cells per well) and treated with 1 μM 4-OH-ICI 47699 (TAM) after plating. Cell viability is assessed at different time points after treatment (usually 72 h) using AquaBluer, unless stated otherwise, as an indicator of viable cells. Alternatively, cell death is also quantified by measuring released lactate dehydrogenase (LDH) activity using the Cytotoxicity Detection Kit. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Animals includes in the treatment study of inducible $Gpx4^{-/-}$ mice are equally distributed between sex and weight, with typically 8-10 weeks of age. The average weight within the groups is between 22 and 24 g. Groups are formed to have comparable numbers of females/males of the same age. Animal weight is arranged to have a similar distribution between females and males. For the pharmacological inhibitor experiments, CreERT2;Gpx4fl/fl mice are injected on day 1 and 3 with 0.5 mg TAM dissolved in Miglyol. On day 4, compound treatment is started (Liproxstatin-1: 10 mg/kg) along with vehicle control (1% dimethylsulphoxide (DMSO) in PBS). Liproxstatin-1 and vehicle control are administered once daily by i.p. injection. Survival analysis is performed using the GraphPad Prism software and statistical analysis is done according to the log-rank test. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Bioact Mater. 2021 Nov 19;13:23-36.
- Nat Commun. 2023 Mar 17;14(1):1430.
- Adv Sci (Weinh). 2023 Jun 21;e2300881.
- Small. 2021 Aug;17(32):e2101368.
- Theranostics. 2021 Aug 4;11(18):8674-8691.

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REFERENCES

[1]. Friedmann Angeli JP, et al. Inactivation of the ferroptosis regulator Gpx4 triggers acute renal failure in mice. Nat Cell Biol. 2014 Dec;16(12):1180-91.

[2]. Zilka O, et al. On the Mechanism of Cytoprotection by Ferrostatin-1 and Liproxstatin-1 and the Role of Lipid Peroxidation in Ferroptotic Cell Death. ACS Cent Sci. 2017 Mar 22;3(3):232-243

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

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