Piperazine Erastin

Cat. No.: HY-100887

CAS No.: 1538593-71-3

Molecular Formula: $C_{35}H_{41}ClN_6O_4$

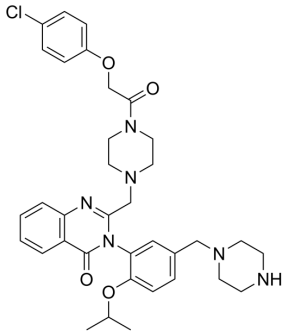
Molecular Weight: 645.19

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 : 33.33 mg/mL (51.66 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.5499 mL	7.7497 mL	15.4993 mL
5 mM	0.3100 mL	1.5499 mL	3.0999 mL
10 mM	0.1550 mL	0.7750 mL	1.5499 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 (3.87 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Piperazine erastin is an analog of erastin which induces an iron-dependent form of non-apoptotic cell death, termed ferroptosis. Piperazine erastin can be used in cancer research[1].

In Vitro

Erastin is a ferroptosis activator. It triggers a unique iron-dependent form of non-apoptotic cell death that is termed as ferroptosis. Piperazine erastin is a more effective analog of erastin which is more water-soluble (0.086 mM for erastin versus 1.4 mM for piperazine erastin) and more metabolically stable. Piperazine erastin is affected similarly by cell death modulators as erastin and displays a distinct pattern from other non-FIN lethal compounds[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

In the xenograft mouse model, a significant delay in tumor growth is observed in the piperazine erastin-treated group

compared to the vehicle-treated group. Ptgs2 is upregulated in mouse liver with 10 or 60 mg/kg piperazine erastin administration[1].

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PROTOCOL

Animal Administration [1]

Mice: Athymic nude mice are injected with four million HT-1080 cells s.c. The next day, 400 μL of vehicle (0.625% DMSO/99.375% HBSS [pH 2]) or 40 mg/kg piperazine erastin is delivered to the s.c. site where cancer cells are injected. Two days later, the s.c. injection is repeated. Three days later, 300 μL of vehicle or 30 mg/kg piperazine erastin is administered to the mice through tail vein. Tail vein injection is repeated three more times, once every other day before the final tumor size is measured in both groups[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2020 Mar 6;11(1):1251.
- Cancer Commun (Lond). 2022 Feb 20.
- Redox Biol. 2021 Jan;38:101801.
- Redox Biol. 2019 Jun;24:101211.
- Int J Biol Sci. 2022 Jun 21;18(10):4135-4150.

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REFERENCES

[1]. Yang WS, et al. Regulation of ferroptotic cancer cell death by GPX4. Cell. 2014 Jan 16;156(1-2):317-331.

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