

Product data sheet



MedKoo Cat#: 555148 Name: Ferrostatin-1 CAS#: 347174-05-4 Chemical Formula: C ₁₅ H ₂₂ N ₂ O ₂ Exact Mass: 262.1681 Molecular Weight: 262.353	
Product supplied as: Powder	
Purity (by HPLC): ≥ 98%	
Shipping conditions: Ambient temperature	
Storage conditions: Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Ferrostatin-1 (Fer-1) is a lipophilic antioxidant that effectively blocks ferroptosis, a distinct non-apoptotic form of cell death caused by lipid peroxidation. Fer-1 inhibited the ROS/RNS generated under rotenone insult in SH-SY5Y cells. Fourth, we revealed the effective role of Fer-1 in ER stress mediated activation of apoptotic pathway. Finally, we reported that Fer-1 mitigated rotenone-induced α -syn aggregation.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	53.31	203.20
DMF	30.0	114.35
DMF:PBS (pH 7.2) (1:4)	0.2	0.76
Ethanol	29.41	112.10

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.81 mL	19.06 mL	38.12 mL
5 mM	0.76 mL	3.81 mL	7.62 mL
10 mM	0.38 mL	1.91 mL	3.81 mL
50 mM	0.08 mL	0.38 mL	0.76 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Li S, Zhou C, Zhu Y, Chao Z, Sheng Z, Zhang Y, Zhao Y. Ferrostatin-1 alleviates angiotensin II (Ang II)- induced inflammation and ferroptosis in astrocytes. *Int Immunopharmacol.* 2021 Jan;90:107179. doi: 10.1016/j.intimp.2020.107179. Epub 2020 Dec 2. PMID: 33278745.
- Anthonyamuthu TS, Tyurina YY, Sun WY, Mikulska-Ruminska K, Shrivastava IH, Tyurin VA, Cinemre FB, Dar HH, VanDemark AP, Holman TR, Sadovsky Y, Stockwell BR, He RR, Bahar I, Bayir H, Kagan VE. Resolving the paradox of ferroptotic cell death: Ferrostatin-1 binds to 15LOX/PEBP1 complex, suppresses generation of peroxidized ETE-PE, and protects against ferroptosis. *Redox Biol.* 2021 Jan;38:101744. doi: 10.1016/j.redox.2020.101744. Epub 2020 Oct 16. PMID: 33126055; PMCID: PMC7596334.

In vivo study

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1. Tang W, Guo J, Liu W, Ma J, Xu G. Ferrostatin-1 attenuates ferroptosis and protects the retina against light-induced retinal degeneration. *Biochem Biophys Res Commun.* 2021 Apr 9;548:27-34. doi: 10.1016/j.bbrc.2021.02.055. Epub 2021 Feb 22. PMID: 33631670.
2. Hu B, Liu Y, Chen X, Zhao J, Han J, Dong H, Zheng Q, Nie G. Ferrostatin-1 protects auditory hair cells from cisplatin-induced ototoxicity in vitro and in vivo. *Biochem Biophys Res Commun.* 2020 Dec 17;533(4):1442-1448. doi: 10.1016/j.bbrc.2020.10.019. Epub 2020 Oct 24. PMID: 33109343.

7. Bioactivity

Biological target:

Ferrostatin-1, a potent and selective ferroptosis inhibitor, suppresses Erastin-induced ferroptosis in HT-1080 cells (EC50=60 nM).

In vitro activity

The expression levels of AT1R, IL-6, IL-1 β , COX-2, and GFAP in the astrocytes were significantly elevated by stimulation with Ang II and greatly suppressed by the introduction of Ferrostatin-1 in a dose-dependent manner. The promoted ROS level and inhibited GSH level in the astrocytes by the stimulation with Ang II were significantly reversed by Ferrostatin-1. Down-regulated GPx4, Nrf2, and HO-1 in the astrocytes induced by Ang II were extremely up-regulated by the treatment of Ferrostatin-1 in a dose-dependent manner.

Reference: *Int Immunopharmacol.* 2021 Jan;90:107179. <https://pubmed.ncbi.nlm.nih.gov/33278745/>

In vivo activity

Consistently, the results of in vivo studies demonstrated that ferrostatin-1 protected against light-induced ferroptosis in rats. And it exerted therapeutic effects by inhibiting neuroinflammation and prevented the effects of light exposure on the structure and function of the retina.

Reference: *Biochem Biophys Res Commun.* 2021 Apr 9;548:27-34. <https://pubmed.ncbi.nlm.nih.gov/33631670/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.