Iron sucrose

Cat. No.: HY-B2068

CAS No.: 8047-67-4

Target: Reactive Oxygen Species

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB

Storage:

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

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SOLVENT & SOLUBILITY

In Vitro	DMSO : 7.14 mg/mL (ultrasonic and warming and heat to 60°C)
In Vivo	1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 0.71 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Iron sucrose (Iron saccharate) is a intravenous iron preparation and a pro-oxidant agent. Iron sucrose has the potential for iron deficiency anemia treatment[1][2][3][4].
In Vitro	Intravenous Iron sucrose results in a statistically significant increase in hemoglobin, mean corpuscular volume, serum iron, ferritin, and % iron saturation, with a corresponding decrease in total iron binding capacity[1]. In vitro survival assays show that 10 mM ascorbate exposure (2h) clonogenically inactivated 40-80% of exponentially growing colon cancer cell lines (HCT116 and HT29). When colon cancer cells are treated in the presence or absence of 250 μM Iron sucrose, then rinsed, and treated with 10 mM ascorbate, the cells demonstrate increased levels of labile iron that results in significantly increased clonogenic cell killing, compared to pharmacological ascorbate alone[2]. The expression levels of intracellular cell adhesion molecule-1 (ICAM-1) and vascular cell adhesion molecule-1 (VCAM-1) and adhesion of U937 cells increased in Iron sucrose-treated human aortic endothelial cells through upregulated NADPH oxidase (NOx) and NF-κB signaling. Iron sucrose significantly induces a time-dependent increase in intracellular ROS production in HAECs between 1 and 3 hours at a concentration of 160 μg/mL, but the effect diminished at 4 hours[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Iron sucrose significantly increases tissue superoxide production, expression of tissue cell adhesion molecules, and endothelial adhesiveness in mice with subtotal nephrectomy. Iron sucrose exacerbates atherosclerosis in the aorta of ApoE$^{-/-}$ mice with uninephrectomy[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Kristiyana Kaneva, et al. Intravenous Iron Sucrose for Children With Iron Deficiency Anemia. J Pediatr Hematol Oncol. 2017 Jul;39(5):e259-e262.

[2]. Kristin E Brandt, et al. Augmentation of Intracellular Iron Using Iron Sucrose Enhances the Toxicity of Pharmacological Ascorbate in Colon Cancer Cells. Redox Biol. 2018 Apr;14:82-87.

[3]. Ko-Lin Kuo, et al. Iron Sucrose Accelerates Early Atherogenesis by Increasing Superoxide Production and Upregulating Adhesion Molecules in CKD. J Am Soc Nephrol. 2014 Nov;25(11):2596-606.

[4]. Richard A Zager, et al. Combined Iron Sucrose and Protoporphyrin Treatment Protects Against Ischemic and Toxin-Mediated Acute Renal Failure. Kidney Int. 2016 Jul;90(1):67-76.

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