

Product Data Sheet

Product Name: SIH (Salinazid)

Cat. No.: GC48894

Chemical Properties

Cas. No. 495-84-1

SMILES O=C(C1=CC=NC=C1)NN=CC2=C(O)C=CC=C2

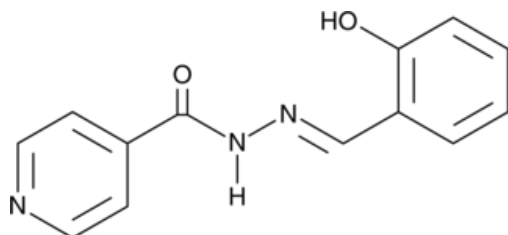
Formula C13H11N3O2 M.Wt 241.2

Solubility DMF: 10 mg/ml, DMF:PBS (pH 7.2) Storage Store at -20°C
(1:3): 0.23 mg/ml, DMSO: 5 mg/ml

General For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the tips ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Evaluation sample solution: ship with blue ice All other available size: ship with RT, or Condition blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines HepG2 cells (human hepatoma cell line)

HepG2 cells were maintained in Eagle's minimal essential medium (MEM) Preparation Method supplemented with 10% fetal bovine serum at 37°C, 5% CO₂. Cells were treated with SIH (10µM) for 24h.

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

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Reaction
Conditions 10μM; 24h

Applications SIH significantly increased intracellular reactive oxygen species (ROS) levels, activated the Nrf2 signaling pathway, and increased glutathione concentration.

Animal experiment [2]:

Animal models SOD1G37R transgenic mice (on a C57BL/6 background)

Mice were injected intraperitoneally with SIH (50mg/kg) starting at 8 months of age, either once or twice per week. Control mice received vehicle (PBS).

Preparation Method Survival analysis was performed for 52 weeks, and mice were sacrificed at 50 weeks of age (end stage for vehicle-treated mice) for histological analysis of motor neuron survival in the lumbar spinal cord.

Dosage form 50mg/kg; i.p.; once or twice per week for 52 weeks

Applications SIH treatment extended life span by 5 weeks, accompanied by increased survival of spinal motor neurons and improved locomotor function.

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References:

- [1] Caro AA, Commissariat A, Dunn C, et al. Prooxidant and antioxidant properties of salicylaldehyde isonicotinoyl hydrazone iron chelators in HepG2 cells. *Biochim Biophys Acta*. 2015 Nov;1850(11):2256-64.
- [2] Jeong SY, Rathore KI, Schulz K, et al. Dysregulation of iron homeostasis in the CNS contributes to disease progression in a mouse model of amyotrophic lateral sclerosis. *J Neurosci*. 2009 Jan 21;29(3):610-9.

Background

SIH (Salinazid) is a lipophilic tridentate iron chelator with anti-tuberculosis activity. SIH exerts antioxidant effects by chelating iron ions, activates the Nrf2 signaling pathway to reduce oxidative stress, and exhibits moderate cytotoxicity against tumor cells. SIH can be used in research related to iron overload diseases, cardioprotection, radiation protection, tumors, and tuberculosis^[1-4].

In vitro, K562 cells were treated with SIH (100 μ M) for 10 minutes. SIH significantly reduced the level of the labile iron pool (LIP)^[5]. HepG2 cells were treated with SIH (10 μ M) for 24 hours. SIH significantly increased intracellular reactive oxygen species levels, activated the Nrf2 signaling pathway, and increased glutathione concentration^[6].

In vivo, C57BL/6 mice were intravenously administered a single dose of SIH (6mg/kg) 30 minutes before intraperitoneal injection of a lethal dose of Fas antibody (0.5mg/kg). SIH significantly reduced plasma aspartate aminotransferase levels and extended survival time^[7]. SOD1G37R transgenic mice were intraperitoneally injected with SIH (50mg/kg; once or twice per week) for 52 weeks. SIH significantly extended the lifespan of the mice, increased the survival rate of spinal motor neurons, and improved motor function^[8].

References:

- [1] Georgieva N, Gadjeva V, Tolekova A, et al. Hepatoprotective effect of isonicotinoylhydrazone SH7 against chronic isoniazid toxicity. *Pharmazie*. 2005 Feb;60(2):138-41.
- [2] Condeles AL, Toledo Junior JC. The Labile Iron Pool Reacts Rapidly and Catalytically with Peroxynitrite. *Biomolecules*. 2021 Sep 9;11(9):1331.
- [3] Tsafack A, Loyevsky M, Ponka P, et al. Mode of action of iron (III) chelators as antimalarials. IV.

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Potential of desferal action by benzoyl and isonicotinoyl hydrazone derivatives. J Lab Clin Med. 1996 Jun;127(6):574-82.

[4] Evans AT, Croft SL, Peters W, et al. Antileishmanial effects of clofazimine and other antimycobacterial agents. Ann Trop Med Parasitol. 1989 Oct;83(5):447-54.

[5] Konijn AM, Glickstein H, Vaisman B, et al. The cellular labile iron pool and intracellular ferritin in K562 cells. Blood. 1999 Sep 15;94(6):2128-34.

[6] Caro AA, Commissariat A, Dunn C, et al. Prooxidant and antioxidant properties of salicylaldehyde isonicotinoyl hydrazone iron chelators in HepG2 cells. Biochim Biophys Acta. 2015 Nov;1850(11):2256-64.

[7] Lesnikov VA, Abbasi N, Lesnikova MP, et al. Protection of human and murine hepatocytes against Fas-induced death by transferrin and iron. Apoptosis. 2006 Jan;11(1):79-87.

[8] Jeong SY, Rathore KI, Schulz K, et al. Dysregulation of iron homeostasis in the CNS contributes to disease progression in a mouse model of amyotrophic lateral sclerosis. J Neurosci. 2009 Jan 21;29(3):610-9.

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