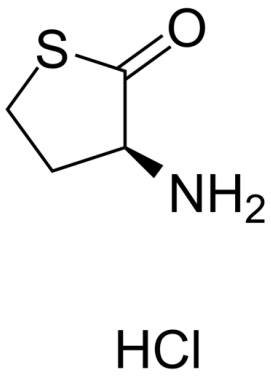
Data Sheet

Product Name:	L-Homocysteine thiolactone (hydrochloride)
Cat. No.:	CS-6394
CAS No.:	31828-68-9
Molecular Formula:	C4H8ClNOS
Molecular Weight:	153.63
Target:	Others
Pathway:	Others
Solubility:	H2O : ≥ 23 mg/mL (149.71 mM)



BIOLOGICAL ACTIVITY:

L-Homocysteine thiolactone hydrochloride is an intramolecular thioester of homocysteine; prevents translational incorporation of homocysteine into proteins. **In Vitro:** In all cell types, from bacterial to human, homocysteine is metabolized to homocysteine thiolactone by methionyl-tRNA synthetase. Elevated levels of homocysteine are an independent risk factor for cardiovascular disease in humans. Homocysteine can be harmful to human cells because of its metabolic conversion to homocysteine thiolactone, a reactive thioester. This conversion occurs in all human cell types, including endothelial cells[1]. Homocysteine thiolactone induces cell death and features of apoptosis including increased phosphotidylserine exposure on the membrane surface, increased apoptotic cells with hypoploid DNA contents, and internucleosomal DNA fragmentation in HL-60 cells[2]. Homocysteine thiolactone is cytotoxic and capable of promoting cell death, as measured by caspase-3 activation and DNA fragmentation. HcyT strongly activates IL-8 release[3]. **In Vivo:** Homocysteine thiolactone is toxic, induces epileptic seizures in rodents, and has been implicated in Alzheimer's disease[4]. Homocysteine thiolactone induces two types of seizures, the coexistence of convulsive and nonconvulsive epilepsy. The grade of seizures is dose dependent[5].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: [3]HUVEC are treated with homocysteine (1, 5, 10 mM) or homocysteine thiolactone (0.25, 0.5, 1 mM) for 3, 6, 12 and 24 h. Cell survival is determined by the MTT method. The optical density is measured at 570 nm with 630 nm as a reference[3]. **Animal Administration:** [5]Rat: Homocysteine thiolactone is freshly prepared in saline and administered in a volume of 1.0 mL/100 g body weight. Rats are divided into control (saline-injected) group and homocysteine thiolactone-treated group. The latter group receives different doses 5.5 mM/kg, 8.0 mM/kg, and 11.0 mM/kg, respectively. Each rat is used only once[5].

References:

[1]. Jakubowski H, et al. Homocysteine thiolactone: metabolic origin and protein homocysteinylation in humans. J Nutr. 2000 Feb;130(2S Suppl):377S-381S.

[2]. Huang RF, et al. Homocysteine thiolactone induces apoptotic DNA damage mediated by increased intracellularhydrogen peroxide and caspase 3 activation in HL-60 cells. Life Sci. 2001 May 11;68(25):2799-811.

[3]. Kerkeni M, et al. Comparative study on in vitro effects of homocysteine thiolactone and homocysteine on HUVECcells: evidence for a stronger proapoptotic and proinflammative homocysteine thiolactone. Mol Cell Biochem. 2006 Oct;291(1-2):119-26.

[4]. Borowczyk K, et al. Metabolism and neurotoxicity of homocysteine thiolactone in mice: evidence for a protective role of paraoxonase 1. J Alzheimers Dis. 2012;30(2):225-31.

[5]. Stanojlovi? O, et al. Two types of seizures in homocysteine thiolactone-treated adult rats, behavioral and electroencephalographic study. Cell Mol Neurobiol. 2009 May;29(3):329-39.

CAIndexNames:

2(3H)-Thiophenone, 3-aminodihydro-, (3S)-, hydrochloride (1:1)

SMILES:

N[C@@H](CCS1)C1=O.Cl

Tel: 732-484-9848 Fax: 888-484-5008 E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA